

1023 Business Park Drive  
P.O. Box 2127  
Traverse City, MI 49685-2127  
616 941-2025



FILE COPY

► Environmental Solutions, Inc

US EPA RECORDS CENTER REGION 5



523413

January 27, 2000

Mr. David Porter  
Permit Section – Surface Water Quality Division  
Michigan Department of Environmental Quality  
120 West Chapin Street  
Cadillac, Michigan 49601-2158

RE: Application for Re-issuance of Wastewater Discharge Permit No. MI0044741

Dear Mr. Porter:

I am enclosing an application for re-issuance of wastewater discharge permit number MI0044741 for Williamsburg Receiving and Storage, Inc. (WRSI), located at 10190 Munro Road, Williamsburg, Michigan. The owner and president of the facility, Mr. Chris Hubbell, has authorized Environmental Solutions, Inc. (ESI) to represent WRSI on permitting issues. I have also enclosed a letter of authorization signed by Mr. Hubbell to allow your offices to contact ESI directly on permitting issues, if necessary. Mr. Hubbell is listed as the contact person in the application; however, to expedite matters it may be necessary to contact our office directly at times.

If you have any questions regarding the referenced information, please give me a call at (231) 941-2025, extension 104.

Sincerely,

ENVIRONMENTAL SOLUTIONS, INC.

A handwritten signature in black ink, appearing to read 'Diane C. Lundin', with a stylized flourish at the end.  
Diane C. Lundin  
Industrial Management Specialist

pc: Chris Hubbell  
Ed Roy

enc.

## LETTER OF AUTHORIZATION

Williamsburg Receiving and Storage, Inc.  
10190 Munro Road  
Williamsburg, Michigan 49690

This letter of authorization is agreed upon and entered into by Environmental Solutions, Inc. (hereinafter referred to as "ESI") and Williamsburg Receiving and Storage, Inc., to provide professional consulting services for compliance with the rules administered under Michigan Act 451, Public Acts of 1994, as amended, Part 31. Specifically, this letter authorizes ESI to act as agent on behalf of Williamsburg Receiving and Storage, Inc., in all matters pertaining to water permitting issues pursuant to Part 31 of Act 451. The facility is located at 10190 Munro Road, Williamsburg, Michigan, 49690.

IN WITNESS WHEREOF, the parties hereto have made and executed this agreement on the date indicated below:

CLIENT:

By: Chris Seibel

Title: President

Date: 1-21-2000

ESI (Agent):

By: [Signature]

Date: 1/13/00



Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION I - General Information

(This information is required by the Part 21 Rules of Michigan Act 451, Public Acts of 1994, as amended, Part 31. A municipality, business, or industry which violates the Part 21 Rules may be enjoined by action commenced by the Attorney General in a court of competent jurisdiction.)

See the facing page for instructions on completing page 1.

DEQ USE ONLY  
Tracking Number

PLEASE TYPE OR PRINT

1. NPDES PERMIT or COC NUMBER MI0044741			4. FACILITY MAILING ADDRESS Street Address or P.O. Box (or check box to use address corresponding to item number <input checked="" type="checkbox"/> 2 • 3)		
2. APPLICANT NAME AND MAILING ADDRESS Chris Hubbell					
Additional Applicant Name Information Williamsburg Receiving and Storage, Inc.			Additional Street Address or P.O. Box Information		
Street Address or P.O. Box 10190 Munro Road			City or Village	State	ZIP Code
City or Village Williamsburg	State MI	ZIP Code 49690	5. CONTACT PERSON Name Chris Hubbell		
Telephone (231) 264-5260			Title Owner (President)		
3. FACILITY NAME AND LOCATION Williamsburg Receiving and Storage, Inc.			ADDRESS Street Address or P.O. Box (or check box to use address corresponding to item number <input checked="" type="checkbox"/> 2 • 3 • 4)		
Street Address 1019 Munro Road					
Additional Street Address			City or Village	State	ZIP Code
City or Village Williamsburg	State MI	ZIP Code 49690	Telephone (with area code)		
Township White Water	County Grand Traverse		Fax Number (with area code)		
Latitude (to the nearest 15 seconds) 44° 49' 50" N			6. CERTIFIED OPERATOR Does the facility have a certified operator? <input checked="" type="checkbox"/> Yes • No		
Longitude (to the nearest 15 seconds) 85° 24' 54" W			Operator's Name Chris Hubbell		
Telephone (with area code) (231) 264-5260			Certification No.	Certification Classification(s) DNR Wastewater Stabilization Lagoon Course	
7. DISCHARGE MONITORING REPORT (DMR) FORMS Check the box that corresponds to the address (above) to which Discharge Monitoring Reports (DMRs) should be mailed. <input checked="" type="checkbox"/> 2 - Applicant Name & Mailing Address • 3 - Facility Name & Location • 4 - Facility Mailing Address • 5 - Contact Person SEND DMRs TO THE ATTENTION OF: <u>Chris Hubbell</u>					
8. PERMIT ACTION REQUESTED (Check one box only) • a NEW, proposed discharge ("New Use"). • an EXISTING discharge currently unpermitted. <input checked="" type="checkbox"/> REISSUANCE of current permit. • Check here if the permit reissuance proposes an increased loading of pollutants to the surface waters of the state ("Increased Use"). Describe the proposed "Increased use":  • MODIFICATION of current permit. • Check here if the request includes an increased loading of pollutants to the surface waters of the state ("Increased Use"). Describe the proposed modification:  • GENERAL PERMIT COVERAGE: Check here if you wish to be considered for coverage under a general permit. (see appendix Table 10)					

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
 SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME

Williamsburg Receiving and Storage, Inc.

NPDES PERMIT or COC NUMBER

MI0044741

**9. RULE 1098 DEMONSTRATION**

In accordance with Rule 1098 of the Part 4 Rules, the permittee must submit a Rule 1098 Demonstration for any new or increased loading of pollutants to the surface waters of the state. Has the "New", "Existing Unpermitted", or "Reissuance" (with increased use) or "Modification (with increased use)" box in question 8 on page 1 been checked?

- Yes, Submit a 1098 demonstration (refer to Rule 1098 in the appendix for instructions). Questions should be directed to the appropriate district office.

☒ No, Continue with Item 10.

**10. OTHER ENVIRONMENTAL PERMITS**

Provide the information requested below for any other federal, state or local environmental permits in effect or applied for at the time of submittal of this application form; including, but not limited to, permits issued under any of the following programs: Air Pollution Control, Hazardous Waste Management, Wetlands Protection, Soil Erosion and Sedimentation Control, and other NPDES permits. Include any additional information on 8 1/2" x 11" paper as an attachment to this application.

Issuing Agency	Permit or COC Number	Permit Type
N/A		

**11. WATER FLOW DIAGRAM AND NARRATIVE DESCRIPTION**

Provide a flow diagram (using 8 1/2" x 11" paper if possible) showing the wastewater flow through the facility including all treatment units, processes and bypass piping, and a narrative description of the water flow through the facility from intake to discharge. Show all operations contributing wastewater and the locations of flow meters, chemical feeds and discharge points. The water balance shall show daily average flow rates at intake and discharge points and approximate daily flow rates between treatment units including influent and treatment rates. Use actual measurements whenever available, otherwise use your best estimate. Show all significant losses of water to products, atmosphere and discharge.

**Municipal Facilities** - Include a narrative that briefly describes the history of the wastewater treatment facility. Include information describing when it was first constructed, what improvements have been made, future plans for upgrade, and other pertinent information.

**Industrial and Commercial Facilities** - The line diagram shall include all operations contributing wastewater including process and production areas, sanitary flows, cooling water and storm water runoff. Include a narrative which provides a brief description of the manufacturing processes.

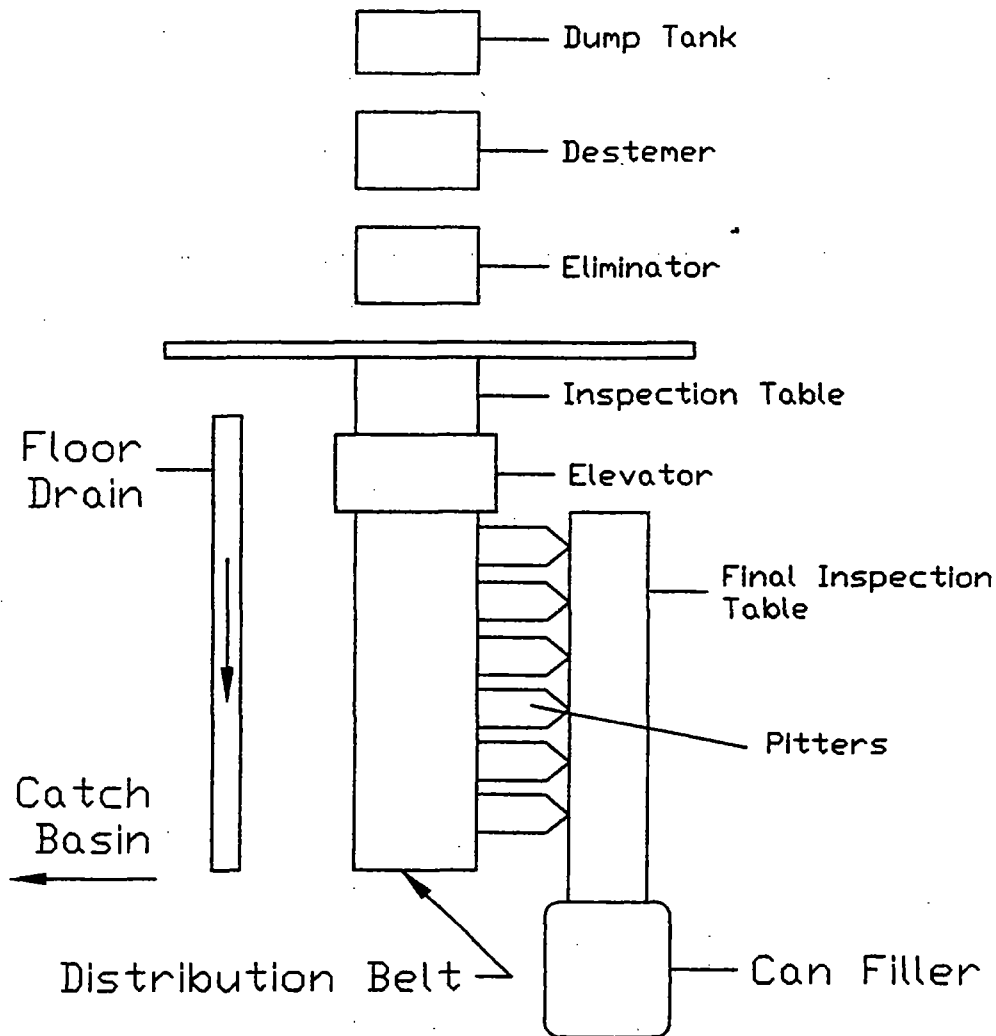
**ATTACH THIS INFORMATION TO THIS APPLICATION**

**12. MAP OF FACILITY AND DISCHARGE LOCATION**

Provide a detailed map on 8 1/2" x 11" paper showing the location of the existing or proposed facility, wastewater treatment system(s), and wastewater discharge points into receiving waters (including bypasses). Include the exact location of the wastewater discharge point(s) and all areas through which the discharge flows (e.g. wetlands, open drains, storm sewers), if applicable, between the discharge point and the receiving water. If the discharge is to a storm sewer, label the storm sewer and show its flow path to the receiving water. Also include the location of any water supply wells and groundwater monitoring wells. This map shall be a United States Geological Survey Quadrangle (7.5 minute series) or other map of comparable detail, scale and quality (which shows surface waterbodies, roads, and other pertinent landmarks). The minimum area this map shall encompass is approximately one mile beyond property boundaries.

**ATTACH THIS INFORMATION TO THIS APPLICATION**

# 11. WATER FLOW DIAGRAM AND NARRATIVE DESCRIPTION



Cherries are processed from the dump tank through various stages and are eventually stored in a brine solution consisting of sodium bisulfate, calcium chlorite and citric acid. The cherries are stored in the brine solution for approximately ninety days. Prior to shipping to the customer, the cherry pits are removed at the pitting station. Water is collected in the catch basin. This water is primarily used for the cooling of cherries. The minimum water flow rate is 1,000,000 gallons per day, the maximum flow rate is 1,320,000 gallons per day. Water is discharged to Tobacco Creek during cherry season only.

H:\1021\flowdiagram

WILLIAMSBURG STORAGE & RECEIVING

WILLIAMSBURG, MICHIGAN

WATER FLOW DIAGRAM

NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE



Environmental Solutions, Inc.

FIGURE #11

DWG DATE: 1/26/00

SCALE: BAR

SIZE: A

DR. BY: DH

SH: 1

Exemption 6, 9 applies to pages 6-7

## SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT or COC NUMBER
Williamsburg Receiving and Storage, Inc.	MI0044741

**13. LIST ADJACENT PROPERTY OWNERS**

List the names and addresses of all property owners adjacent to the facility, treatment systems, and discharge locations. List this information in the space provided below or include the information as an attachment on 8 1/2" x 11" paper. If additional space is necessary, copy this blank page and attach this information to this application.

[illegible]

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION I - General Information

PLEASE TYPE OR PRINT

FACILITY NAME

Williamsburg Receiving and Storage, Inc.

NPDES PERMIT or COC NUMBER

MI0044741

**14. ALTERNATE POWER SOURCE**

If you are applying for a New or Existing Unpermitted discharge, continue to Item 15.

Applicants with an approved Alternate Power Source Report shall indicate any changes that have been made to the alternate power source serving the facility in the past 5 years. Submit the new information with the application and provide specific information regarding the appropriate pump station or treatment unit the alternate power source serves.

A. Indicate if the facility has a back-up source of power and if emergency procedures have been developed in case of a power outage to the facility.

- ☐ Yes, Continue to B.                      ☐ No, Continue to Item 15.    ☒ Not Applicable, Continue to Item 15.

B. Has an Alternate Power Source Report been approved by the DEQ?

- ☐ Yes, Continue to C.                      ☐ No, Continue to Item 15.

C. Have changes been made that have not been reported to DEQ since the Report was approved?

- ☐ Yes, Submit the information as an attachment to this application.    ☐ No, Continue to Item 14.

**15. RESIDUALS**

A. Are residuals (biosolids, sludges, ash, grit, etc.) generated as a result of wastewater treatment?

- ☐ Yes, Continue to B.                      ☒ No, Continue with Section II or Section III.

B. Are the residuals regulated under Michigan Act 451, PA of 1994, as amended, Part 111 (Hazardous Waste Management) or Part 115 (Solid Waste Management)?

- ☐ Yes, Continue to C.                      ☐ No, Continue with Section II or Section III.

C. Briefly describe the residuals stabilization processes and the final use or disposal method: \_\_\_\_\_

\_\_\_\_\_

D. Has a Program for Effective Residuals Management (PERM) been approved by DEQ?    ☐ Yes    ☐ No

E. Estimate the amount of residuals the facility generates (on a dry weight basis). \_\_\_\_\_ tons per year

F. Enter the volume of residual storage capacity at this facility. \_\_\_\_\_ ☐ million gallons    or    ☐ cubic feet

G. Submit a copy of the most recent residuals analyses (both nutrient and pollutant, if available).

H. Provide the name, address and telephone number of the Land Application Contractor used by the facility, if applicable.

Name of Contractor:

Address:

City, State, Zip Code:

Telephone Number:

This completes Section I. Facilities requesting authorization to only discharge sanitary wastewaters continue with Section II. Other facilities requesting authorization to discharge wastewater continue with Section III. Section I shall be accompanied by either Section II or Section III of this application. If you need assistance in determining the appropriate Sections to complete, contact the district office (see Pages 1 and 2 of the appendix for district office addresses and a map of district boundaries).



Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION III - Industrial and Commercial Wastewater

**A. Facility Information**

Section III is to be completed by all facilities classified as Industrial or Commercial facilities. Industrial and Commercial facilities include facilities that discharge or propose to discharge a wastewater generated by a production process or service provided or through a remediation project. Municipal and public facilities are not required to complete Section III (unless requesting authorization for discharges other than sanitary wastewater).

PLEASE TYPE OR PRINT

<b>FACILITY NAME</b> Williamsburg Receiving and Storage, Inc.	<b>NPDES PERMIT or COC NUMBER</b> MI0044741
--	--

**1. BUSINESS INFORMATION**

- A. Provide up to four (4) Standard Industrial Classification (SIC) codes, in order of economic importance, which best describe the major products or services provided by this facility.

1. 2030	2.	3.	4.
------------	----	----	----

- B. Indicate if this facility is a primary industry (refer to Table 2 to determine if this facility is a primary industry).

• Yes, This facility is a primary industry. Indicate the primary industry as identified in Table 2 in the appendix: \_\_\_\_\_

☒ No, This facility is not a primary industry, continue with Item C.

- C. Do you operate a concentrated animal feeding operation or an aquatic animal production facility?

• Yes, Contact the appropriate district office (see Pages 2 and 3 in the appendix).

☒ No, Continue below.

**2. WATER SUPPLY AND DISCHARGE TYPE**

- A. List all water sources and provide average flows. The volume may be estimated from water supply meter readings, pump capacities, etc. Provide the name of the source where appropriate (i.e., Grand River, Lake Michigan, City of Millpond). The units are as follows: MGD (million gallons per day), MGY (million gallons per year), GPD (gallons per day). If you are reporting in another unit, select the box with the blank following it and provide the units in the underlined area. If necessary, provide a written description as an attachment on 8 1/2" x 11" paper.

	Name of Source	Average Volume or Flow Rate	(Indicate units)	
Municipal Supply:			<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
			<input type="checkbox"/> GPD	<input type="checkbox"/>
Surface Water Intake:			<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
			<input type="checkbox"/> GPD	<input type="checkbox"/>
Private Well:	Private Wells	1.2	<input checked="" type="checkbox"/> MGD	<input type="checkbox"/> MGY
			<input type="checkbox"/> GPD	<input type="checkbox"/>
Other (specify)			<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
			<input type="checkbox"/> GPD	<input type="checkbox"/>

- B. Identify water discharged by the facility and provide average flows. If water is first used for one purpose and then is subsequently used for another purpose, indicate the type and amount of the last use. For example, if water is initially used for noncontact cooling water and then for process water, indicate the amount of process water. The amount of water from sources should approximate the amount of water usage. If they are different, provide an explanation.

	Average Flow Rate	(Indicate units)	
Process Wastewater	1.2	<input checked="" type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
Contact Cooling		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
Noncontact Cooling		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
GWCU		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>

GWCU - stands for Ground Water Clean-Up,

	Average Flow Rate	(Indicate units)	
Sanitary Wastewater		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
Regulated Storm Water		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
HPTW		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>
Other (Specify)		<input type="checkbox"/> MGD	<input type="checkbox"/> MGY
		<input type="checkbox"/> GPD	<input type="checkbox"/>

HPTW - stands for Hydrostatic Pressure Test Water

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
 SECTION III - Industrial and Commercial Wastewater

**B. Outfall Information**

Complete a separate Section III.B. - Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage, Inc.	NPDES PERMIT or COC NUMBER MI0044741	OUTFALL NUMBER 001
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**3. OUTFALL INFORMATION**

A. Receiving Water:

Receiving Water  
Tobeco Creek

B. County/Township:

County

Grand Traverse

Township

White Water

C. State Planar Coordinates:

SE 1/4

SE 1/4

Section

8

Town

28N

Range

9W

D. Latitude/Longitude:

Latitude

44° 49' 51" N

Longitude

85° 25' 18" W

E. Type of Wastewater Discharged (Check all that apply):

☒ Contact Cooling

☐ Sanitary Wastewater

☐ Storm Water (regulated)

☐ Other - specify \_\_\_\_\_

☐ Noncontact Cooling

☒ Process Wastewater

☐ Storm Water (not regulated)

F. Is this a Seasonal Discharge?

☒ Yes - List the discharge periods (by month) in the space provided below.

☐ No - Continue with item G

From July	Through September	From	Through
From	Through	From	Through

G. Discharge Schedule (Yearly Average):

To be determined -- normally won't be utilized, only in overflow situation  
Normal operation, however, is 20 hours/day

?

days/year

H. Expected or Proposed Discharge Flow Rates:

Total Yearly	Daily Minimum	Daily Average	Daily Maximum	Maximum Design Flow Rate
33.60 MGY	1.00 MGD	1.20 MGD	1.32 MGD	1.32 MGD

I. The maximum discharge flow rate to be authorized in the permit:

1.32

☐ GPD

☒ MGD

☐ MGY

☐ \_\_\_\_\_

J. Does this discharge contain storm water subject to effluent guidelines?

☐ Yes - indicate under which category. \_\_\_\_\_

☒ No

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
 SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage, Inc.	NPDES PERMIT or COC NUMBER: MI0044741	OUTFALL NUMBER 001
---	--	-----------------------

4. WATER TREATMENT ADDITIVES

A. Is there a discharge of any water treatment additives or chemicals used to treat water and/or wastewater used or generated by this facility ?

☒ No - Continue with Item 5.

- Yes - Provide the following information for each additive. Provide the Material Safety Data Sheets (MSDS) for each additive as an attachment to this application. Enter the product name of the additive and name of the manufacturer. Describe the function of the additive, e.g., biocide, corrosion inhibitor, etc. Provide the average and maximum proposed discharge concentrations of the additive. Enter the concentrations of the proposed additives after all treatment has occurred. If the actual proposed discharge concentrations are not known, an estimate shall be made using stoichiometry and/or a mass balance. Provide the proposed discharge frequency in hours per day and days per week or year.

Product Name/Name of Manufacturer	Additive Function	Discharge Concentrations		Discharge Frequency	
		Average	Maximum	hours/day	days/wk
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr
		• µg/l • mg/l	• µg/l • mg/l	hours/day	• days/wk • days/yr

B. Table 11 contains a list of the additives for which the DEQ currently has sufficient toxicological data. If the additive this facility is proposing to discharge is not included in Table 11, call the Surface Water Quality Division, Great Lake and Environmental Assessment section at 517-335-4184 to inquire about the status of the specific water treatment additive prior to providing any additional information. If the DEQ does not have sufficient toxicological information for any additive being proposed for discharge at this facility, the applicant must provide a 48-hour EC50 for a North American planktonic crustacean (*Daphnia* sp., *Ceriodaphnia* sp. or *Simocephalus* sp.) and the results of a toxicity test for one other North American Freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. The water treatment additive will not be evaluated for discharge authorization unless the appropriate information is attached.

- Aquatic toxicity data is attached.

C. If the discharge is treated to remove any of the above additives prior to discharge, indicate which additive the treatment is for and briefly describe the treatment process:

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage, Inc.	NPDES PERMIT or COC NUMBER MI0044741	OUTFALL NUMBER 001
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5. PROCESS STREAMS CONTRIBUTING TO OUTFALL DISCHARGE

This information is used to determine the applicable federal regulations for this discharge. The information required to be reported is dependent on the type of facility. Page 11 of the appendix contains an abbreviated list of various industries and the types of information each shall report in this application. Assistance can be received by calling the appropriate district office (see pages 1 and 2 of the appendix). All industries shall provide the name of each process and the Standard Industrial Classification (SIC) code for the process. If the wastestream is not regulated under federal categorical standards, the applicant shall report all pollutants which have the reasonable potential to be present in the discharge.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: Cherry Processing

B. SIC code: 2030

C. Describe the process and provide measures of production (see the instructions to determine the appropriate information to be reported):  
Cherries are processed and cooled; then packed and stored in brine pits for approximately ninety days. The process wastewater is utilized during the cherry season and discharged to Tobeco Creek.

PROCESS INFORMATION

A. Name of the process contributing to the discharge: \_\_\_\_\_

B. SIC code: \_\_\_\_\_

C. Describe the process and provide measures of production (see the instructions to determine the appropriate information to be reported):

PROCESS INFORMATION

A. Name of the process contributing to the discharge: \_\_\_\_\_

B. SIC code: \_\_\_\_\_

C. Describe the process and provide measures of production (see the instructions to determine the appropriate information to be reported):

PROCESS INFORMATION

A. Name of the process contributing to the discharge: \_\_\_\_\_

B. SIC code: \_\_\_\_\_

C. Describe the process and provide measures of production (see the instructions to determine the appropriate information to be reported):

PROCESS INFORMATION

A. Name of the process contributing to the discharge: \_\_\_\_\_

B. SIC code: \_\_\_\_\_

C. Describe the process and provide measures of production (see the instructions to determine the appropriate information to be reported):

## SECTION III - Industrial and Commercial Wastewater

## B. Outfall Information

**Complete a separate Section III.B.- Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.**

PLEASE TYPE OR PRINT

[illegible]

## 6. Wastewater Characteristics – Conventional Pollutants

The existing permit requires testing of BOD, TSS and pH. Limits have been determined previously. They are as follows:

Effluent Characteristics	Monthly Avg. kg/day (lbs/day)	Daily Maximum kg/day (lbs/day)	Measurement Frequency	Sample Type
Flow, M <sup>3</sup> /day (MGD)			Daily*	Report total daily flow
Biochemical Oxygen Demand	180 (396)	287 (632)	2X Weekly*	Grab
Total Suspended Solids**	373 (821)	520 (1143)	2X Weekly*	Grab
Outfall Observation***			Daily	Visual

\*During period of discharge

\*\*The total yearly discharge to Tobeco Creek shall be limited to a maximum of 8,100 lbs/yr for BOD<sub>5</sub>, and 15,200 lbs/yr for total suspended solids. The permittee shall report the monthly and cumulative masses of the individual parameter during the discharge season.

\*\*\*Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, or deposits) shall be reported immediately to the District Office of the Surface Water Quality Division followed with a written report within 5 days detailing the findings of the investigation and the steps taken to correct the condition.

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B. - Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.

PLEASE TYPE OR PRINT

<b>FACILITY NAME</b> Williamsburg Receiving and Storage, Inc.	<b>NPDES or COC PERMIT NUMBER</b> MI0044741	<b>OUTFALL NUMBER</b> 001
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**7. PRIMARY INDUSTRY TOXIC POLLUTANT INFORMATION**  
COMPLETE THIS ITEM ONLY IF THE FACILITY IS A PRIMARY INDUSTRY AS INDICATED IN ITEM 1 OF THIS SECTION. IF THIS IS NOT A PRIMARY INDUSTRY, CONTINUE WITH ITEM 8.

For two or more substantially identical outfalls, permission may be requested from the appropriate district supervisor to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfall(s). If the request is granted by the District Supervisor, attach a narrative describing which outfall was sampled, and describe why the outfalls which were not sampled are substantially similar to the outfall that was sampled.

A. Indicate if the discharge from this outfall contains any process wastewater. If the discharge from this outfall contains process wastewater, check YES and continue with B below. If the discharge from this outfall does not contain any process wastewater, check NO and continue with item 8. Does this outfall discharge contain any process wastewater?

☐ Yes, Continue with B.                      ☐ No, Continue with Item 8.

B. Primary Industries must submit test results for organic toxic pollutants. Table 2 in the appendix contains a list of GC/MS fractions required by each industrial Category. Indicate the GC/MS fractions required for the facility Industrial Category.

☐ Volatile                      ☐ Base/Neutral                      ☐ Acid                      ☐ Pesticide

Provide analytical data for each parameter of the GC/MS fraction checked above. The required parameters in each fraction are specified in Table 3 in the appendix. Provide copies of the analytical results or record the information in Item 9. Additionally, all primary industries which discharge process wastewater shall provide quantitative data for the parameters specified in Table 4 in the appendix. Applicants are not required to analyze for 2,3,7,8-TCDD (Dioxin) unless they believe it is present in the discharge.

**8. ADDITIONAL TOXIC POLLUTANT INFORMATION**

A. If an applicant, regardless of the type of discharge, knows or has reason to believe that any pollutant listed in Tables 3, 4, 5, 7 and 8 is discharged from any outfall, then quantitative data shall be provided for those pollutants.

☒ Not Applicable/Believed Absent                      ☐ Present - Data is attached or recorded in Item 9.

B. If an applicant (primary or secondary industry), regardless of the type of discharge, knows or has reason to believe any pollutants listed in Table 6 are discharged from any outfall, the applicant shall describe reasons for the pollutant being present and provide any available quantitative data.

☒ Not Applicable/Believed Absent                      ☐ Present - Data is attached or recorded in Item 9.

C. All applicants (primary and secondary industries) who use or manufacture 2,4,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-Dimethyl 0-(2,4,5-Trichlorophenyl) Phosphorothioate (Ronnel); 2,4,5-trichlorophenol (TCP); or Hexachlorophene (HCP) must report data using standard analytical calibration procedures. All surface water discharge applicants (primary and secondary industries) who know or have reason to believe that 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (TCDD) is or may be present in their discharge must report qualitative data generated using a screening procedure not calibrated with analytical standards for TCDD.

☒ Not Applicable/Believed Absent                      ☐ Present - Data is attached or recorded in Item 9.

D. If the applicant knows or has reason to believe that biological tests (including WET tests) were made in the last three (3) years on any of the applicant's discharges or on a receiving water in relation to the discharge(s), provide this information as an attachment to this application.

☒ Not Applicable                      ☐ Applicable - Data is attached.

E. If a contract laboratory or consulting firm performed any of the analyses required by this application, provide the name and address of each laboratory or firm as an attachment to this application.

☒ Not Applicable                      ☐ Applicable - Information is provided.

F. Does the facility discharge any other toxic or injurious chemical substances not listed in Tables 3 through 9 in the appendix?

☒ No. Continue with Section III.C.                      ☐ Yes. Data is attached or recorded in Item 9.

## Michigan Department of Environmental Quality- Surface Water Quality Division

### SECTION III - Industrial and Commercial Wastewater

**Complete a separate Section III.B. - Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.**

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage, Inc.	NPDES or COC PERMIT NUMBER MI0044741	OUTFALL NUMBER 001
---	---	-----------------------

## 9. EFFLUENT CHARACTERISTICS - TOXIC POLLUTANTS

This worksheet is to be used by applicants to record information on any Michigan Critical Material, EPA Priority Pollutant, or hazardous substance for which this application requires that data be provided. This includes any substance from Table 3 which lists Organic Toxic Pollutants, Table 4, Other Toxic Pollutants, Table 5, Conventional and Nonconventional Pollutants, Table 6, Toxic Pollutants and Hazardous Substances, Table 7 the Michigan Critical Materials Register, or Table 8 the EPA Priority Pollutant Listing. If the applicant believes a pollutant may be present in the effluent that is not included in these lists, data shall be provided for that pollutant with this application. This information may also be included as an attachment to this application on 8 1/2" x 11" paper. Page 12 of the appendix is a list of minimum testing requirements for various dischargers. As a minimum applicants for those types of discharge must provide analytical data based on that list.

Applicants shall use EPA approved analytical methods when conducting sampling. For each parameter provide the name of the parameter as listed in the Tables, the maximum daily and monthly discharge concentrations, units, the number of analyses performed, and the sample type. If analytical results for a composite sample are being provided and the sample is not a 24-hour composite, include a description of the sample collection technique used as an attachment to this application on 8 1/2" x 11" paper. When calculating an average where some values are detectable and others are nondetectable, either provide the actual data, or regard each nondetectable value as the detection level when calculating concentrations and indicate that the result is "less than" the value reported. (See definitions of "daily concentration" and "monthly concentration" in the general provisions at the front of this form.) Please include an explanation if "Pollution Prevention" is expected to provide reductions of pollutants. (See page ii and iii for sampling definitions, including, "daily concentration", and "monthly concentration".) See Table 12 in the appendix for acceptable "Levels of Quantification".

- Check this box if additional information is included as an attachment.

[illegible]

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
 SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

Complete a separate Section III.B.- Outfall Information (pages 17-24) for each outfall at the facility. Make copies of this blank section of the application if necessary.

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage, Inc.	NPDES or COC PERMIT NUMBER MI0044741	OUTFALL NUMBER 001
---	---	-----------------------

**10. TOXIC POLLUTANT REASONABLE POTENTIAL EFFLUENT DATA**

In addition to the above information and in accordance with Rule 1211 of the Part 8 Rules (see pages 7-10 in the appendix), for each toxic substance which is or may be discharged from the facility, the applicant must provide individual sample data to determine if Water Quality Based Effluent Limits (WQBELs) are necessary.

WQBELs for toxic pollutants are incorporated into an NPDES permit when the DEQ has determined that a substance is or may be discharged into the waters of the state at a level that has a reasonable potential to exceed the substance's water quality value. The determination is made by developing a preliminary effluent limit (PEL) and comparing it to the potential effluent quality (PEQ) of the discharge.

The DEQ will determine the PELs for every toxic substance the permittee reports as being present in their discharge. The PEQ for each toxic substance will be developed using individual sample results provided by the permittee.

If the permittee provides at least 10 representative facility-specific effluent samples that are greater than the detection limit, the maximum PEQ shall equal the upper 95th percentile of all the representative daily discharge concentrations and the average PEQ shall equal the upper 95th percentile of all the representative 30-day average concentrations. Reasonable potential for the discharge of a toxic substance to cause or contribute to an excursion above any water quality value will be considered to exist if the average or maximum PEQ exceeds any of the chronic or acute PELs, respectively.

If the permittee is unable to provide 10 effluent samples that are greater than the detection level, the PEQ shall be determined by identifying the total number of representative effluent samples, both detectable and nondetectable, and multiplying the maximum reported value by a multiplying factor found in Table 3 of Rule 1211, (see page 8 in the appendix). List both detectable and nondetectable results. Where a result is nondetectable indicate the detection level.

Reasonable potential for the discharge of a toxic substance to cause or contribute to an excursion above any water quality value will be considered to exist if the PEQ for a pollutant exceeds its PEL. Attach additional sheets where there are more than ten (10) analytical results.

If it is determined that the toxic substance concentration has a reasonable potential to cause or contribute to an excursion above any water quality value, then a WQBEL for that substance will be incorporated into the NPDES permit.

Toxic Pollutant	Samples (ug/l)									
	1	2	3	4	5	6	7	8	9	10
N/A										

Are any of the above listed toxic pollutants present in the facility's supply water?

- No, Continue to next question.
- Yes, Please read below

In accordance with Rule 1211(7) facilities whose supply water contains toxic pollutants that are withdrawn from and discharged to the same body of water may qualify for intake credits for those toxic pollutants. See Rule 1211(7) for qualification and demonstration requirements.

Michigan Department of Environmental Quality- Surface Water Quality Division  
**WASTEWATER DISCHARGE PERMIT APPLICATION**  
SECTION III - Industrial and Commercial Wastewater

C. Signature Page

PLEASE TYPE OR PRINT

FACILITY NAME Williamsburg Receiving and Storage	NPDES or COC PERMIT NUMBER (existing permits only) MI0044741
---	---

11. CERTIFICATION

Rule 323.2114(1-4) of the Part 21 Rules of Michigan Act 451, Public Act of 1994, Part 31, as amended, requires that this application be signed as follows:

A. For a corporation, by a principal executive officer of at least the level of vice president, or their designated representative if the representative is responsible for the overall operation of the facility from which the discharge described in the permit application or other NPDES form originates.

B. For a partnership, by a general partner.


C. For a sole proprietorship, by the proprietor.

D. For a municipal, state, or other public facility, by either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

*"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for having knowledge of violations."*

Print Name: Chris Hubbell Title: Owner (President)

Representing Williamsburg Receiving and Storage, Inc.

Signature:  Date: 1-21-2000

This completes Section III. Section III must be completed for all applicants requesting authorization to discharge wastewater(s) from an industrial or commercial facility to a surface water of the State. When Section I and III are complete please return application to the appropriate district office (see pages 2 and 3 of the appendix for district office addresses and a map of district boundaries).

If assistance is needed in determining the appropriate sections to complete or if assistance is needed completing this application contact the appropriate district office.

**ATTACHMENT 1**

**Groundwater Discharge Permit  
Application**

## GENERAL INFORMATION

Print or type clearly

1. DISCHARGE FACILITY NAME		Williamsburg Receiving and Storage, Inc.	
2. FACILITY OWNER NAME AND MAILING ADDRESS			
Name		Chris Hubbell	
Street Address or P.O. Box		10190 Munro Road	
City, State and Zip Code		Williamsburg, MI 49690	
Telephone No.		(231) 264-5260	
Fax No.		(231) 264-8774	
3. CONTACT PERSON			
Name and Title		Chris Hubbell - Owner (president)	
Street Address or P.O. Box		10190 Munro Road	
City, State and Zip Code		Williamsburg, Michigan 49690	
Telephone No.		(231) 264-5260	Fax No. (231) 264-8774
4. DISCHARGE LOCATION			
Street Address		10190 Munro Road	
City	Williamsburg	State	Michigan Zip Code 49690
County	Grand Traverse	Whitewater Township	
Township	28N	Range	9W Section Number 9
Legal Description Attached			
First Quarter Section		Second Quarter Section	Additional Quarter Sections
N 44° 44' 54"		Longitude W 85° 24' 32"	
Latitude			
5. CERTIFIED OPERATOR (NOT REQUIRED FOR 2211(c), (d), (e), (g), (h), or 2213 (2), (3), (4))			
Name		David Cooper	Certification Number A1h
Street Address		Environmental Solutions, Inc P.O. Box 2127	
City	Traverse City	State	Michigan Zip Code 49685
Telephone No.		(231) 941-2025	

# Certificate of Survey

## DESCRIPTIONS

Parcels of land situated in Whitewater Township, Grand Traverse County, Michigan, and more fully described as follows:

### PARCEL 1

That part of the Southwest 1/4 of Section 9, Town 28 North, Range 9 West, described as: Beginning at the Southwest corner of said Section 9; thence North 00°05'55" East along the West line of said section and centerline of Munro Road 1198.11 feet; thence South 89°47'38" East 207.28 feet; thence North 53°45'33" East 202.05 feet; thence South 89°47'38" East 125.65 feet; thence South 00°05'55" West 1316.82 feet to the South line of said section and centerline of Angell Road; thence North 89°56'50" West along said South section line and centerline 495.65 feet to the point of beginning, and containing 14.20 acres of land.

Subject to the rights of the public over the Southerly 33 feet thereof as occupied by Angell Road, and the Westerly 33 feet as occupied by Munro Road.

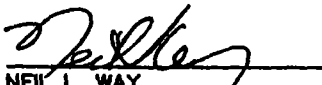
Also subject to easements, right-of-ways, reservations and restrictions of record.

### PARCEL 2

That part of the Southwest 1/4 of Section 9, Town 28 North, Range 9 West, described as: Commencing at the Southwest corner of said Section 9; thence South 89°56'50" East along the South line of said section and centerline of Angell Road 495.65 feet to the point of beginning; thence North 00°05'55" East 1316.82 feet; thence South 89°47'38" East 164.35 feet; thence South 00°05'54" West 502.53 feet; thence South 89°52'14" East 594.51 feet; thence South 00°06'22" West 155.66 feet; thence South 89°52'14" East 236.82 feet; thence South 00°09'03" West 657.08 feet to said South section line and centerline; thence North 89°56'50" West along said South section line and centerline 995.06 feet to the point of beginning, and containing 19.63 acres of land.

Subject to the rights of the public over the Southerly 33 feet thereof as occupied by Angell Road.

Also subject to easements, right-of-ways, reservations and restrictions of record.

  
NEIL L. WAY  
Licensed Surveyor Number: 28432

<b>EAGLE LAND SURVEYING</b>  710 US-31 SOUTH P.O. BOX 836 ELK RAPIDS, MI 49629	(616) 264-9110 FAX: 264-9311	For:  <b>CHRIS HUBBELL</b>	
	Part of the SW 1/4 of Sec. 9, T28N, R9W, Whitewater Twp., Grand Traverse Co., Michigan.		
	Date: 2 June 1999	File No.: 99-2086	
	FB/PG: 2042/68	Drafted By: SMM-1044	Sheet 2 of 3

6. FOR RULE 2215, 2216 AND 2218 AUTHORIZATIONS ONLY:

PLEASE INDICATE WHERE THE COMPLIANCE MONITORING REPORT FORMS SHOULD BE SENT

NAME

Chris Hubbell owner (President)

STREET ADDRESS

10190 Munro Road

CITY

Williamsburg

STATE

Michigan

ZIP CODE

49690

7. AUTHORIZATION REQUESTED:

☐ Rule 2210(y), Site Specific Exemption

☐ NEW USE

☐ REISSUANCE

☐ Rule 2211, Notification

☐ NEW USE

☐ REISSUANCE

☐ Rule 2213, Notification with Certification

☐ NEW USE

☐ REISSUANCE

☐ Rule 2215, General Permit, Certificate of Coverage

☐ NEW USE

☐ REISSUANCE

☐ Rule 2216, Specific Discharges

☐ NEW USE

☐ REISSUANCE

☒ Rule 2218, Discharge Permit

☒ NEW USE

☐ REISSUANCE

IF REQUESTING A REISSUANCE OR AN AUTHORIZATION DIFFERENT THAN THE CURRENT AUTHORIZATION, PLEASE INCLUDE THE PERMIT/EXEMPTION NUMBER OF THE CURRENT AUTHORIZATION:

If the current authorization is a permit, Rules 2215, 2216 or 2218, or was issued prior to August 26, 1999, the number is:

M\_\_\_\_\_

If the current authorization is a site specific exemption, Rule 2210(y), or was issued prior to August 26, 1999, the number is:

GWE-\_\_\_\_\_

If the current authorization is a notification, Rule 2211, the number is:

GWN-\_\_\_\_\_

If the current authorization is a notification/certification, Rule 2213, the number is:

GWC-\_\_\_\_\_

8. FACILITY STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE. This information is available through the US Department of Labor, Office of Safety and Health Administration.

2033

9. SITE MAPS

Provide two black and white 8 1/2" X 11" maps drawn to scale that show the following:

SITE MAP 1

- a) Discharge location in relation to property boundaries on a topographic map.
- b) Township and county name.
- c) North arrow orientation.

SITE MAP 2 - All sites must include item a, include items b-e as necessary.

- a. Current and proposed treatment units and discharge areas and distance to property lines.
- b. Monitoring wells on site and on adjacent properties.
- c. Potable wells on site and on adjacent properties.
- d. Surface waters, including wetlands, lakes, rivers, streams, and drains on the property.
- e. Distance between multiple disposal sites.

ATTACH SITE MAP TO THIS APPLICATION FORM





**10. WATER USAGE DIAGRAM**

Please attach an 8 ½ x 11 diagram showing water usage at the facility, from supply to discharge. Include all flows such as sanitary, process water, etc. Please also indicate where in the system additives or other substances are added to the waste stream for which this authorization is being sought. The water balance should show daily average flow rates at influent, intake and discharge points and daily flow rates between treatment units. Please use actual measurements whenever possible.

**11. OWNERSHIP OF TREATMENT SYSTEM AND DISPOSAL AREA**

Are all parts of the treatment system and discharge areas ( e.g. treatment plant, underground piping or irrigation fields) located on property owned by the applicant? Yes \_\_\_\_\_ No   x  

IF NO, ATTACH THE NAME AND ADDRESS OF THE PROPERTY OWNER WHERE THE DISCHARGE WILL OCCUR, AND A COPY OF THE WRITTEN PERMISSION TO DISCHARGE ON PROPERTY NOT OWNED BY THE DISCHARGER.

**12. PROXIMITY OF TREATMENT SYSTEM TO A KNOWN SOURCE OF GROUNDWATER CONTAMINATION**

Are there any known groundwater contamination sites within 1/4 mile of your disposal site?

Yes \_\_\_\_\_ No   x   Unknown \_\_\_\_\_

IF YES, ATTACH TO THE APPLICATION FORM A DESCRIPTION OF THE LOCATION AND CONTAMINANTS BEING REMEDIATED AT THE SITE.

**13. ISOLATION DISTANCE**

The following are isolation distances required from the discharge to adjacent water supply wells. What is the distance from your discharge to the nearest water supply well?

<u>WELL TYPE</u>	<u>PERMIT AUTHORIZATION: 2218, 2216(3)</u>	<u>ALL OTHER AUTHORIZATIONS</u>
I, IIa	2000	200
IIb, III	800	75
Domestic	300	50

Distance to nearest **Type I, IIa** water supply well     >   200  

Distance to nearest **Type IIb, III** water supply well     >   75  

Distance to nearest **Domestic** water supply well     >   50  

Closest municipal well - Elk Rapids

**14. ADJACENT PROPERTY OWNERS**

List the names and addresses of all property owners adjacent to the facility, treatment systems and discharge locations. Include properties across roadways.

ATTACH ANY ADDITIONAL NAMES AND ADDRESSES TO THE APPLICATION FORM.

NAME

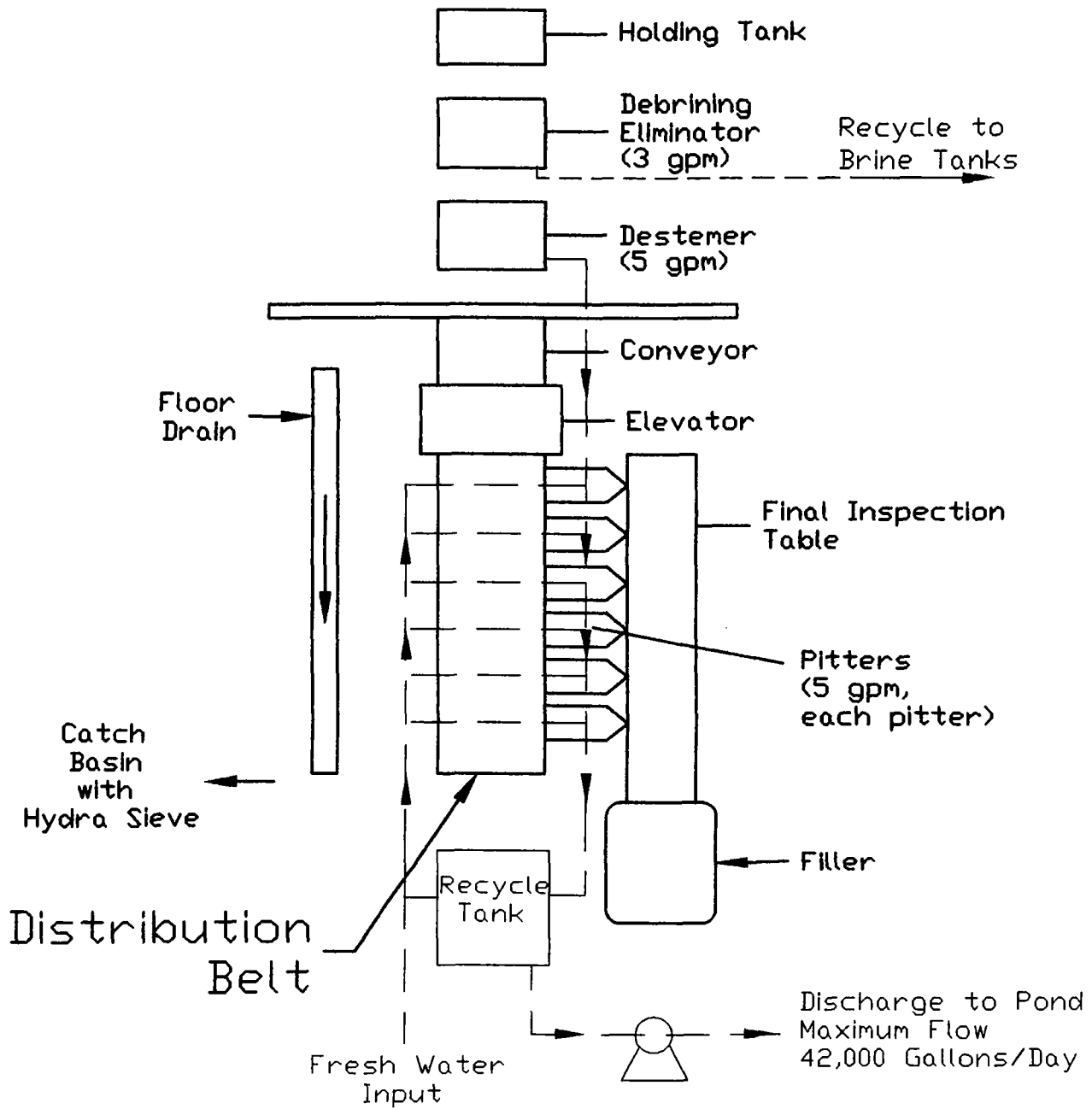
COMPLETE MAILING ADDRESS

Attached

**15. WELLHEAD PROTECTION**

Is your facility located in a designated wellhead protection area? Yes \_\_\_\_\_ No   x  

If yes, please identify the community \_\_\_\_\_



H:\1021\flowdiagram

WILLIAMSBURG STORAGE & RECEIVING

WILLIAMSBURG, MICHIGAN

WATER USAGE DIAGRAM



Environmental Solutions, Inc.

DWG DATE: 2/17/00

SCALE: BAR SIZE: A

DR. BY: DH SH: 1

NOTE: DRAWING IS FOR REFERENCE ONLY AND IS NEITHER COMPLETE NOR TO EXACTING SCALE

## IRRIGATION LICENSE AGREEMENT

Paul Hubbell d/b/a Orchard View Farms, whose address is 15950 Townline Road, Williamsburg, Michigan 49690, ("Licensor"), and Christopher Hubbell, Janet Hubbell and Williamsburg Receiving & Storage, Inc., whose address is 10190 Muro, Williamsburg, Michigan 49690, ("Licensee"), enter into this Irrigation License Agreement on the following term and conditions:

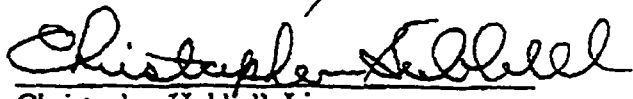
1. *Background.* The Licensor owns the real property in Grand Traverse County, Michigan, legally described on attached Exhibit "A". The Licensee owns real property contiguous to Licensor's parcel(s) described on attached Exhibit "B". The Licensee wishes to drain discharge water from a pitting facility to a retention lagoon to be located on Licensor's property. The Licensee also wishes to utilize water in the lagoon for irrigation of orchards located on his property and on other adjoining property. The Licensor is willing to grant the Licensee a revocable license over any portion of the Licensor's parcel required for establishment and maintenance of the retention lagoon, as well irrigation of all adjoining parcels.
2. *Grant of the license.* The Licensor grants to the Licensee a nonexclusive license over any portion of the Licensor's parcel required for installation and maintenance of the retention lagoon and the acrial spray and trickle irrigation systems. The Licensor may revoke the License at any time by written notice to the Licensee at the address shown above.
3. *Indemnification and waiver.* The Licensee agrees to indemnify the licensor for any claims, actions, damages, arising from the installation of the retention lagoon and irrigation systems/equipment on Licensor's parcel(s). The Licensee also waives any right of recovery which might arise against the Licensor for any loss or damage arising out of the use of Licensor's property.

4. The parties agree to negotiate, in good faith, any necessary modifications to this Agreement and execute all documents necessary to effectuate the intent of the parties.
5. *Assignment.* The Licensee shall not assign or transfer its rights under this License without written consent from the Licensor, which consent shall not be unreasonably withheld.
6. *Effective date.* This License Agreement shall become effective when all the parties listed below have signed this Agreement.

  
\_\_\_\_\_  
Witness

  
\_\_\_\_\_  
Witness

  
\_\_\_\_\_  
Paul Hubbell, Licensor

  
\_\_\_\_\_  
Christopher Hubbell, Licensee

**List Adjacent Property Owners**

List the names and addresses of all owners adjacent to the facility, treatment systems, and discharge locations

**List Adjacent Property Owners**

List the names and addresses of all owners adjacent to the facility, treatment systems, and discharge locations

[illegible]

**Exemption 6 applies to this page**

16. SIGNATORY REQUIREMENT

Pursuant to Rule 2114 of the Part 21 Rules, this application must have an original signature, and be signed by the appropriate representative(s) as follows:

- A. For a corporation, the form must be signed by a principal executive officer of at least the level of Vice-president, or his/her designated representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the permit application (appropriate documentation must be provided to demonstrate the position and responsibility of the designated representative).
- B. For a partnership, the form must be signed by a general partner.
- C. For a sole proprietorship, the form must be signed by the proprietor.
- D. For municipal, state or other public facility, the form must be signed by either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

**All signatures submitted to the department must be original signatures, or the application will be returned as incomplete. The details of these requirements are found in Rule 2114.**

Print Name Chris Hubbell Title Owner (President)

Representing Williamsburg Receiving and Storage, Inc.

Signature  Date 3-28-00

If the application is for the discharge of treated sanitary wastewater from a privately owned treatment system serving a mobile home park, campground, apartment complex, condominium, nursing home, prison, or other commercial or residential facility, a principal executive officer or ranking elected official from the local unit of government must sign the permit application in the space provided. The signature is only a certification that the local unit of government is aware of its responsibilities as set forth in Section 3109(2) of Act 451. The refusal of the local unit of government to sign the application does not reduce its liability under the statute.

*This is to certify that I am aware of and recognize the responsibilities of the municipality as set forth in Section 3109 of Act 451.*

Print Name \_\_\_\_\_ Title \_\_\_\_\_

Representing \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

THIS COMPLETES THE GENERAL INFORMATION PORTION THAT ALL DISCHARGERS MUST FILL OUT. PLEASE GO TO THE NEXT SECTION OF THE APPLICATION, DEALING WITH SPECIFIC DISCHARGES, AND FILL OUT THE APPROPRIATE PAGES FOR THE SPECIFIC DISCHARGE PROPOSED. IF APPLYING FOR AN EXEMPTION UNDER RULE 2210(y). PLEASE ATTACH THE PERTINENT INFORMATION OUTLINING HOW THE PROPOSED DISCHARGE VOLUME AND CONSTITUENTS ARE NOT LIKELY TO BECOME INJURIOUS TO GROUNDWATER.

RULE 323.2218

DISCHARGE PERMITS

1. TYPE OF TREATED WASTEWATER FOR WHICH THE AUTHORIZATION IS REQUESTED. PLEASE CHECK ALL THAT APPLY

- ☐ Sanitary sewage  
☒ Process wastewater  
☐ Cooling water, greater than 5,000 gallons per day  
☐ Non-contact cooling without additives, greater than 10,000 gallons per day, source water not approved by department.  
☐ Non-contact cooling water with additives, greater than 10,000 gallons per day.  
☐ Other, please describe:

2. DISCHARGE VOLUME

ALL DISCHARGES:

Maximum daily discharge: 42,000 gallons per day

Cumulative annual discharge: 15.3 million gallons per year

SEASONAL DISCHARGES SHOULD INCLUDE THE FOLLOWING:

Discharge period \_\_\_\_\_ through \_\_\_\_\_

IRRIGATION SYSTEMS AND SEEPAGE BEDS UTILIZING SOILS FOR TREATMENT SHOULD INCLUDE THE FOLLOWING:

Effluent application rate: See following page

Inches per hour \_\_\_\_\_ Inches per day \_\_\_\_\_ Inches per week \_\_\_\_\_ Inches per year \_\_\_\_\_

3. DISCHARGE METHOD

Please check the discharge method used:

LAND SURFACE DISPOSAL	DISPOSAL CODE	SUBSURFACE DISPOSAL	DISPOSAL CODE
<input checked="" type="checkbox"/> Spray Irrigation	A1f1	<input type="checkbox"/> Tile Field	A1g1
<input type="checkbox"/> Ridge and Furrow	A1f2	<input type="checkbox"/> Injection well	A1g2
<input type="checkbox"/> Flood/Sheet Irrigation	A1f3	<input type="checkbox"/> Trench	A1g3
<input type="checkbox"/> Seepage Beds:		<input type="checkbox"/> Drywell	A1g4
<input type="checkbox"/> Slow/Medium Rate	A1f4		
<input type="checkbox"/> Rapid Rate	A1f5		
<input checked="" type="checkbox"/> Other. Please describe			

TRICKLE IRRIGATION

**WILLIAMSBURG RECEIVING AND STORAGE  
APPLICATION RATES - SPRAY AND TRICKLE SYSTEMS**

<b>System</b>	<b>Discharge Period</b>	<b>Application Rate</b>			
		<b>inches/hour</b>	<b>inches/day</b>	<b>inches/week</b>	<b>inches/year</b>
<b>Spray System</b>	<b>October 1 to April 30</b>	<b>.05</b>	<b>.40</b>	<b>2.0</b>	<b>57.6</b>
<b>Trickle System</b>	<b>May 1 to September 30</b>	<b>.004</b>	<b>.09</b>	<b>.63</b>	<b>13.86</b>

#### 4a. New Permits – Rule 2213(3)(a)

The following information must be included in the application for a new permit. Refer directly to Rule 2218 for specific information requirements. Please indicate where the necessary information is included in this application. Please indicate NA for those that do not apply to your discharge:

- ☒ An evaluation of the feasibility of alternatives to discharge to the groundwater in accordance with Rule 2219. See instructions, Page 9. This item is found in attached cover letter
- ☒ The basis of design as required by 323.2218(2). See instructions, Page 10. This item is found in Irrigation Management Plan
- ☒ The hydrogeological report as required by Rule 2221. See Guidesheet I. This item is found see letter requesting waiving of hydrogeological requirements
- ☒ The wastewater characterization as required by Rule 2220. See Guidesheet III. This item is found in attached cover letter
- ☐ If a standard applicable to the discharge is to be determined under Rule 2222(5), the information necessary to determine that standard, including whether a substance is a hazardous substance under part 201. See Guidesheet V. This item is found \_\_\_\_\_
- ☒ The groundwater, or other media, sampling and analysis plan as specified by Rule 2223. See instructions, Page 10 This item is found see letter requesting waiving of hydrogeological
- ☒ Information is attached that demonstrates the land treatment requirements of Rule 2233 will be met. See Guidesheet II. This item is found in Irrigation Management Plan
- ☐ If a lagoon is included in the treatment process, information that demonstrates that the requirements of Rule 2237 will be met. See Guidesheet IV. This item is found \_\_\_\_\_

#### 4b. Reissuance of current permit, no modifications, Rule 2218(3)(c). Please check all system characteristics that apply for this specific discharge:

- ☐ The discharge consists of the same quantity, effluent characterization, and treatment process as previously permitted.
- ☐ A narrative description of the history of facility compliance with effluent and groundwater permit limits and sampling frequency is included. This item is found \_\_\_\_\_
- ☐ An updated site map is included. This item is found \_\_\_\_\_
- ☐ The most recent static water levels and groundwater elevations from all wells on site. This item is found \_\_\_\_\_
- ☐ A current groundwater contour map is included, with a narrative evaluation of whether changes to the existing groundwater monitoring system are warranted and the rationale for any proposed change. This item is found \_\_\_\_\_
- ☐ The most recent groundwater quality results are included from all wells on site. This item is found \_\_\_\_\_
- ☐ The most recent effluent quality results are included. This item is found \_\_\_\_\_

Please check that all of the following that apply are included:

- ☐ If permit limits were exceeded, the steps taken to bring the facility into compliance. This item is found \_\_\_\_\_
- ☐ An evaluation of whether there are general trends in the effluent or groundwater sampling data indicating that the discharge is approaching permit limits. This item is found \_\_\_\_\_
- ☐ The discharger has provided the department, within 30 calendar days of completion of construction of the treatment facilities, a certification by an engineer licensed under Act No. 299 of the Public Acts of 1980, as amended, that a quality control and quality assurance program was utilized and that the facilities were built consistent with standard construction practices to comply with the permit and this part.

4c. **Reissuance of current permit, with significant modifications Rule 2218(3)(b).** Please check all system characteristics that apply for this specific discharge:

- NA An evaluation of the feasibility of alternatives to discharge to the groundwater in accordance with Rule 2219 is included. See Page 9. This item is found \_\_\_\_\_.
- NA The basis of design required by 323.2218(2) is included. See Page 10. This item is found \_\_\_\_\_.
- NA The hydrogeological report required by Rule 2221 is included. See Guidesheet I. This item is found \_\_\_\_\_.
- NA The wastewater characterization required by Rule 2220 is included. See Guidesheet III. This item is found \_\_\_\_\_.
- NA If a standard applicable to the discharge is to be determined under Rule 2222(5), the information necessary to determine that standard, including whether a substance is a hazardous substance under Part 201. See Guidesheet V. This item is found \_\_\_\_\_.
- NA The monitoring plan as specified by Rule 2223 is included. See Page 10. This item is found \_\_\_\_\_.
- NA Information that demonstrates the land treatment requirements of Rule 2233 will be met is included. See Guidesheet II. This item is found \_\_\_\_\_.
- NA If a lagoon is included in the treatment process, information that demonstrates that the requirements of Rule 2237 will be met is included. See Guidesheet IV. This item is found \_\_\_\_\_.
- NA A narrative description of the history of facility compliance with effluent and groundwater permit limits and sampling frequency is included. This item is found \_\_\_\_\_.
- NA An updated site map is included. This item is found \_\_\_\_\_.
- NA The most recent static water levels and groundwater elevations from all wells on site are included. This item is found \_\_\_\_\_.
- NA A current groundwater contour map and a narrative evaluation of whether changes to the existing groundwater monitoring system are warranted and the rationale for any proposed change are included. This item is found \_\_\_\_\_.
- NA The most recent groundwater quality results from all wells on site are included. This item is found \_\_\_\_\_.
- NA The most recent effluent quality results are included. This item is found \_\_\_\_\_.

**Please check that all of the following that apply are included:**

- NA If permit limits were exceeded, a description of the steps taken to bring the facility into compliance. This item is found \_\_\_\_\_.
- NA An evaluation of whether there are general trends in the effluent or groundwater sampling data indicating that the discharge is approaching permit limits. This item is found \_\_\_\_\_.
- NA The discharger has provided the department, within 30 calendar days of completion of construction of the treatment facilities, a certification by an engineer licensed under Act No. 299 of the Public Acts of 1980, as amended, that a quality control and quality assurance program was utilized and that the facilities were built consistent with standard construction practices to comply with the permit and this part.

# **ATTACHMENT 2**

## **Irrigation Management Plan**

## Irrigation Management Plan

### **Williamsburg Receiving and Storage**

#### **General Information:**

The maximum discharge rate of the facility will be 42,000 gpd, or 15.3 million gallons per year. The average discharge rate, calculated as a ten hour day versus a twenty hour day for maximum, will be 21,000 gpd. The initial discharged water will be staged in a 1.5 million gallon holding pond. From the holding pond the water will be pumped and applied to the land utilizing a slow rate land treatment system.

The irrigation of the discharge water will be applied in two ways:

1. During the spring and summer months, the discharge will be applied to the 80 acre cherry orchard through a trickle irrigation system.
2. During time in which watering the cherry orchard would be detrimental to the water uptake of the trees, the discharge will be applied to a 29.7 acre field through a spray irrigation system

Refer to Figure 1 for location of Trickle Irrigation and Spray Irrigation areas.

#### **Trickle Irrigation System**

The 80 acre cherry orchard is divided into four zones or cells (refer to Figure 2). Each 20-acre zone consists of 17 acres (740,520 sq ft.) of usable wetted area. Each 17 acre zone will receive 42,000 gpd (5,615 cubic feet) of discharge via a main supply line laid the length of the orchards. Secondary supply lines will run the length of each row of cherry trees. Along these secondary lines, trickle irrigation nodes will be placed every six feet. An isolation distance of 100 feet will be maintained between the irrigation nodes (wetted area) and the property lines. The maximum application rate to each 17 acre zone equates to 0.09 inch/day/ 17 acres.

The proposed irrigation schedule for the 80 acre cherry orchard will be conducted between May through September of each year. Irrigation of the orchard will be conducted seven days a week during this time frame. However, the orchard application will be rotated between zones each day. Therefore, each zone will be utilized once out of every four days. Application to each of the 20-acre zones will be conducted 24 hours out of each day.

The maximum application rate for each 20 acre zone (17 acres wetted) will be 0.09 inches /day. Each 20 acre zone will be irrigated once out of every four days. The application rate will not exceed 0.004 inches/hr for each 24 hour period. This application rate equates to a 3.46 in/22 week period for the entire 68 acre wetted trickle irrigation system.

1" / day ?  
Application will not exceed 0.63 inches/week and 13.86 inches/22 week period for any 17 acre wetted area of the trickle irrigation system. The application rates to each zone will be monitored daily through the use of flow meter attached to each of the four 20 acre zones. Individual gate valves will be utilized to control flow to each of the 20-acre zones.

#### **Spray Irrigation System**

During the off season (between October and April) the discharge water from the pond will be applied to a 4.7 acre field (Fields 1,2 & 3) located on the Williamsburg Receiving and Storage property and to a 25 acre field located on an adjacent property. These fields will be planted with a grass forage crop consisting of clover, red fescue or alfalfa, which will be cut approximately three

times during the season and removed. The vegetative yield will be approximately 3.5 tons/acre. The application rates described will provide approximately one third of the necessary phosphorous and one half of the necessary potassium to maintain optimum yield, according to the nutrient levels determined through wastewater characterization.

Winters? { The application to these fields will be conducted between the hours of 8:00 a.m. and 4:00 p.m. to allow maximum evaporation to occur. It is also estimated that during the off-season, the spray irrigation system will operate 5 days out of every week. The system will run longer during dry periods and shorter during wet weather, in order to balance hydraulic loading.

The spray irrigation system is divided into six (5 acre) zones, each consisting of 4 acres of usable wetted area (Refer to Figure 3). Each 4-acre wetted zone will be rotated daily so that each zone is utilized once every six days. The wetted area of each zone comprises 174,240 sq. ft. An application rate of 42,000 gpd equates to 5,615 cubic feet per day to each of the 4 acre wetted zones, or 0.4 inches/day/4 acres.

→ Since the spray irrigation will be utilized for only 8 hr./day, the application rate will be 0.05 in/hr during operation. = 1.4" / day  
not 1"

The spray irrigation system will operate for 150 days between October 1 and April 30 of each year. This equates to 57.6 in/ 150 day period for the total 24 acre wetted spray irrigation system. On a one day in six rotation schedule, each 4 acre wetted zone will receive 9.6 in/ 150 day period.

#### Soil Information

The soils in each of the irrigation areas consist predominantly of Emmet Sandy Loam with 0-2% to 2-6% slopes. According to the "Grand Traverse County Soil Survey, Physical and Chemical Properties of the Soils" the bulk density of the Emmet Sandy Loam ranges from 1.3-1.65 g/cm<sup>3</sup>. The permeability of these soils ranges from 2-6 in/hr. according to this Soil Survey. Refer to Figure 4 for a soils map with the facility property boundaries and the wetted area of the irrigation fields clearly outlined.

Depth to groundwater in the trickle irrigation cherry orchard area ranges from 50' to 87' feet below grade according to local well logs. According to the hydrogeological investigation data obtained from the spray irrigation fields on the Williamsburg Receiving and Storage facility, groundwater lies 10'-50' below grade.

#### Wastewater Characterization

Table 1 illustrates the quality of the expected effluent. Samples were collected from the pitting operation at a comparable facility; however, one major difference at the facility where samples were collected is that there is not an initial debrining elimination stage. This means that concentrations of some constituents, particularly chlorides, are higher than what is expected at Williamsburg Storage and Receiving. The samples were collected within a four-hour time period and were tested and measured against discharge standards provided in Rule 323.2222. The average value, standard deviation, standard error, and upper control limits are shown for each parameter tested, as described in "Guidesheet III, Characterization of Wastewater", provided by the Michigan Department of Environmental Quality. Results were calculated at a 95 percent confidence level.

The results indicate that the parameters tested are expected to be within the required discharge standards. The upper control limit for chloride concentration exceeds the groundwater application standard, however, since the process at Williamsburg will be recycling the effluent from the eliminator stage, where chloride concentrations are highest, a result lower than the standard is

expected. Refer to Figure 5 for assumptions and calculations of expected discharge concentrations, and all analytical results. These calculations show that the expected concentration at discharge would be 234 mg/l, below the 250 mg/l standard.

The level of Biochemical Oxygen Demand for the samples tested indicated a level of 1350 mg/l, which, at the low application rate being proposed, we expect full land treatment without detrimental impact to groundwater quality.

### **Trickle Irrigation Management Procedures:**

1. The Trickle Irrigation System consists of an 80-acre cherry orchard divided into 4 20-acre zones.
2. Open the gate valve at the appropriate (20 acre) zone and document from the flow meter, total gallons pumped to this zone in the Irrigation Management Log Book.
3. Insure that the remaining three irrigation zone gate valves are closed.
4. Implement visual inspection of the zone to be irrigated for detrimental effects of the irrigation process. Note these observations in the Log Book.
5. Make necessary adjustments to the irrigation nodes within the zone prior to start up.
6. Start pump and adjust discharge rate to 29 gpm. Record date, time and flow rate in the Log Book.
7. Visually inspect the irrigation zone for leaks, breaks or other failures.
8. Periodically check the field and flow rate during each day.
9. Alternate trickle irrigation field zones every 24 hrs.

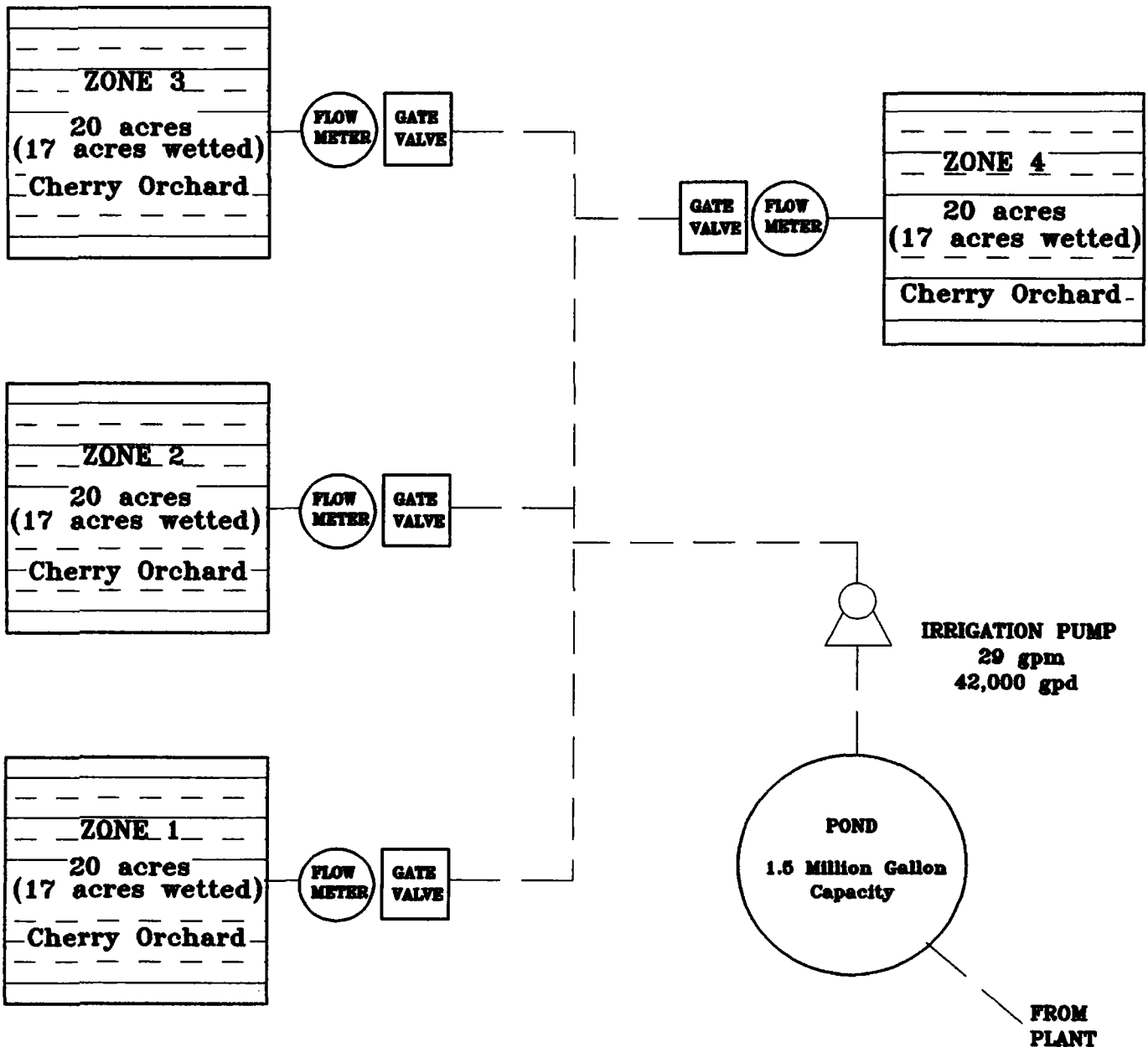
### **Spray Irrigation Management Procedures:**

1. The Spray Irrigation System is comprised of 4.7-acres on the Williamsburg Receiving and Storage property and a 25-acre field located on the south side of Angel Road.
2. The spray irrigation fields have been divided into six (~5-acre) zones.
3. Each (5-acre) zone will be irrigated for 6-8 hours per day at a rate of 29 gpm.
4. Visually inspect the designated spray irrigation field for soil moisture and for detrimental effects of the irrigation process. Note these observations in the Log Book.
5. Manually adjust the gate valves to proper 5-acre plot to be irrigated.
6. Make necessary adjustments to the spray gun nozzles and tracking systems within the zone prior to start up, to account for any over-wetted areas.
7. Document total gallons discharged to this particular zone in the Log Book prior to start up.
8. Start pump and adjust discharge rate to 29 gpm. Record date, time and flow rate in the Log Book.
9. Visually inspect the spray irrigation zone to insure proper operation.
10. Periodically check the field and flow rate during each day.
11. Operate the spray irrigation system between the hours of 8:00 a.m. and 4:00 pm daily.
12. Alternate the spray irrigation field zones each day.
13. Fields should be mowed and vegetation removed as necessary.

# **FIGURE 1**

**Site Location Map of  
Trickle Irrigation and  
Spray Irrigation Areas**

**FIGURE 2**  
**Trickle Irrigation System**



THE TRICKLE IRRIGATION SYSTEM SCHEDULE  
IS DESIGNED TO RUN IN EACH ZONE FOR 24 HOURS  
AND THEN ROTATE TO THE NEXT ZONE.  
THIS ALLOWS FOR A 72 HOUR REST PERIOD.

H:\\1021\\80IRRIGATION

**WILLIAMSBURG STORAGE & RECEIVING**  
**TRICKLE IRRIGATION SYSTEM**  
**OPERATING BETWEEN MAY - SEPTEMBER**

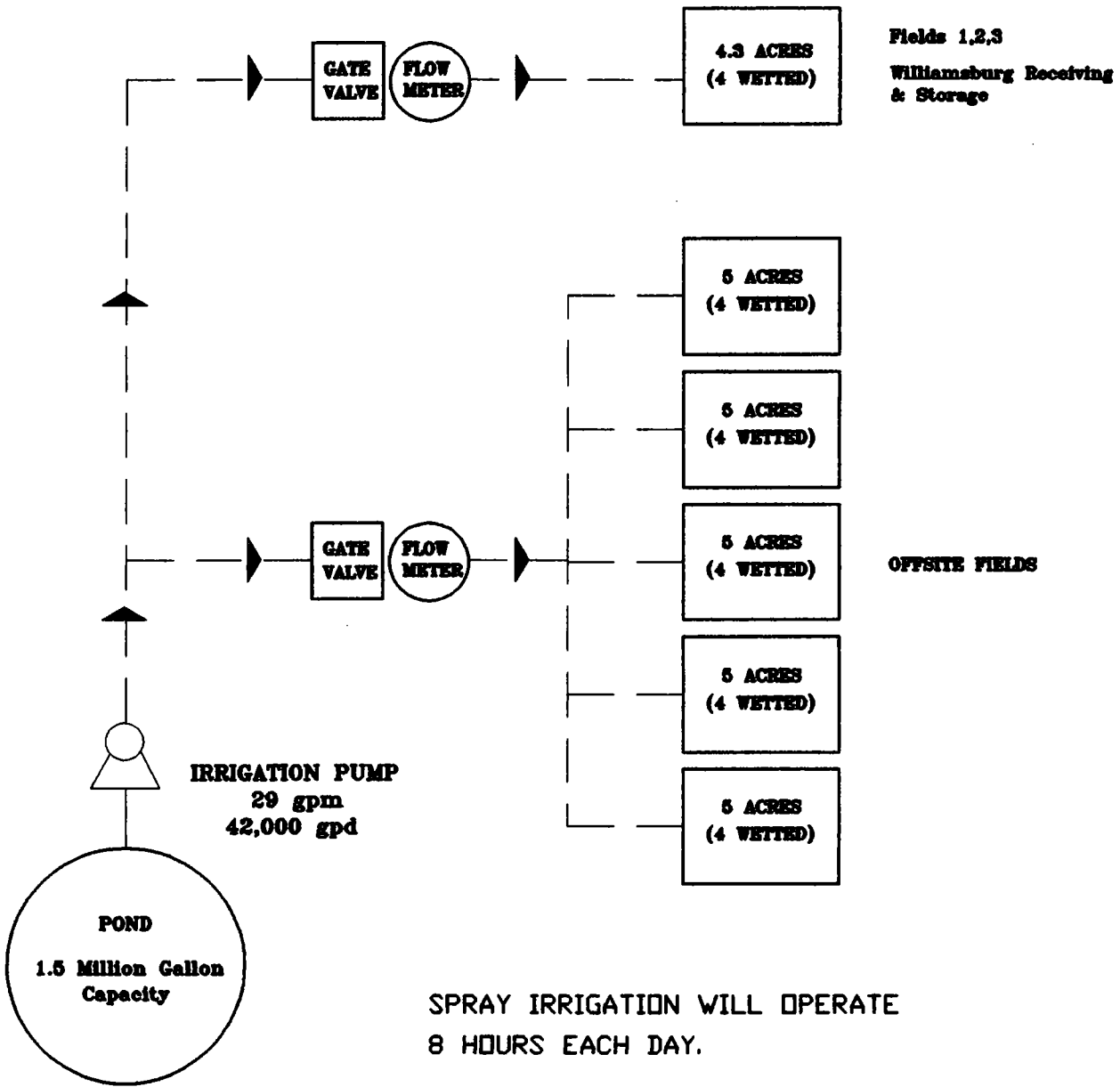
NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE



Environmental Solutions, Inc.


DWG DATE: 3/17/00	
SCALE: BAR	SIZE: A
DR. BY: DH	SH: 1

**FIGURE 3**  
**Spray Irrigation System**



SPRAY IRRIGATION WILL OPERATE  
8 HOURS EACH DAY.

H:\\1021\\SPRAY

WILLIAMSBURG STORAGE & RECEIVING		
SPRAY IRRIGATION SYSTEM OPERATING BETWEEN OCTOBER - APRIL		
 ..... Environmental Solutions, Inc.		
	DWG DATE: 3/23/00	
	SCALE: BAR	SIZE: A
	DR. BY: DH	SH: 1

NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE

# **FIGURE 4**

## **Soils Map**



SW 1/4 of Section 9, T28N, R9W  
Whitewater Township  
Grand Traverse County, Michigan

►Environmental Solutions, Inc.

NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE

**Table 1**  
**Pitting Test Sample Results**

**TABLE 1 - PITTING TEST SAMPLE RESULTS**

<i>Analyte</i>	<i>Detection Limit</i>	<i>GW Rule Limit (µg/l)</i>	<i>AVG µg/l</i>	<i>STD DEV. µg/l</i>	<i>ERROR µg/l</i>	<i>UCL µg/l</i>
Sodium	1 mg/l	15,000	99.50	614.33	12.39	128.66
Chloride	1 mg/l	25,000	285.00	5633.33	37.53	373.30
Sulfate	2 mg/l	25,000	48.25	8.92	1.49	51.76
Phosphorous	.01 mg/l		2.78	0.22	0.23	3.32
Total Inorganic Nitrogen	.01 mg/l	5	3.13	0.06	0.13	3.42
Ammonia	.01 mg/l		1.25	0.07	0.13	1.56
Nitrate	.01 mg/l		1.83	0.00	0.03	1.88
Nitrite	.01 mg/l	0.5	0.03	0.00	0.00	0.03
Calcium	1 mg/l		212.50	1225.00	17.50	253.68
Iron	.02 mg/l	0.3	0.17	0.00	0.00	0.18
Magnesium	1 mg/l		22.00			22.00
Potassium	.1 mg/l		35.50	91.67	4.79	46.76
Bicarbonate	10 mg/l		92.25	13.58	1.84	96.59
Carbonate	10 mg/l					undetected
Fluoride			0.33	0.00	0.03	0.39
Hardness (Ca <sub>2</sub> CO <sub>3</sub> )	5 mg/l		617.50	8091.67	44.98	723.33
Conductivity	1.0 umhos/cm		1525.00	75833.33	137.69	1848.98
BOD	400 mg/l		1025.00	75833.33	137.69	1348.98
pH			6.52	0.17	0.20	7.00

Utilize "Test Methods for Evaluation of Solid Waste, Physical-Chemical Methods", SW-846, 3rd Edition, 9/86 as updated through 8/26/99 or "Guidelines Establishing Test Procedures for the Analysis of Pollutants," 40 CFR Part 136.

# **FIGURE 5**

**Calculations, Assumptions,  
Analytical Results**

### **Figure 5: Chloride Concentration Estimates**

$F_{WF}$  = Total flow rate at Williamsburg: 6 Pitters @ 5 gallons/minute + 1 Destemmer @ 5 gallons/minute + 1 Debrining Eliminator @ 3 gallons/minute = 38 gallons per minute

Comparable to anonymous facility where samples were collected, however, at Williamsburg, the Debrining Eliminator flow is recycled to the brine. Concentration at the eliminator is higher than at the pitters and destemmers. From previous hydrogeology study conducted at Williamsburg, the concentration of chloride in brine solution is 4,000 mg/l. If we assume approximate dilution by  $\frac{1}{2}$  at the eliminator, the concentration would be 2,000 mg/l. Therefore,  $C_{DB}$  = Concentration at Debrining Eliminator = 2,000 mg/l

To calculate the estimated concentration at Williamsburg, the concentration at the Debrining Eliminator can be subtracted from overall results. Using one minute as a basis, the following formula can be utilized:

$$C_{WF} = \{(C_{AF} * F_{AF} * K_{GL}) - (C_{DB} * F_{DB} * K_{GL})\} / \{(F_{WDIS} * K_{GL})\}$$

Where:

- $C_{WF}$  = Chloride Concentration at Williamsburg Facility, mg/l
- $C_{AF}$  = Chloride Concentration at Anonymous Facility, UCL, mg/l
- $C_{DB}$  = Chloride Concentration at Debrining Eliminator, mg/l
- $F_{AF}$  = Flow at Anonymous Facility, assume comparable to Williamsburg total flow, gallons
- $F_{db}$  = Flow at Debrining Eliminator, gallons
- $F_{WDIS}$  = Maximum flow to be discharged at Williamsburg Facility
- $K_{GL}$  = Constant, Gallons to Liter conversion

Substituting into the equation:

$$C_{WF} = \{(374 \text{ mg/liter} * 38 \text{ gallons} * 3.8 \text{ liters/gallon}) - (2000 \text{ mg/liter} * 3 \text{ gallons} * 3.8 \text{ liters/gallon})\} / \{35 \text{ gallons} * 3.8 \text{ liters/gallon}\} = 234 \text{ mg/liter}$$

Utilizing this equation, the estimated concentration of chloride in the effluent at the Williamsburg facility is expected to be 234 mg/liter. Assumptions were: comparable flows at both facilities, dilution at debrining eliminator, which is recycled at Williamsburg, to 2000 mg/l (stronger brine concentration would make final value go down), and maximum flow discharge.



# TRACE

Analytical Laboratories, Inc.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: [TraceAnalytical@mad.scientist.com](mailto:TraceAnalytical@mad.scientist.com)

# COPY

February 15, 2000

Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

RE: Trace ID Y858

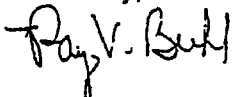
Dear Mr. Lundin:

Enclosed are the analytical results associated with your Project #1021.

This information was examined through Trace's validation process to ensure that all requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work. However, if there are exceptions, they will be noted at the bottom of the appropriate report page.

Thank you for working with Trace. If you have questions regarding this data, please contact Ann Preston, our client services manager, at (231) 773-5998, ext. 224.

Sincerely,



Ray V. Buhl  
Laboratory Manager

RVB/bmc  
Enclosures



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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/03/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	NITRATE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.9	0.015	EPA 300.0
02	Pitting Sample 2	1.8	0.015	EPA 300.0
03	Pitting Sample 3	1.8	0.015	EPA 300.0
04	Pitting Sample 4	1.8	0.015	EPA 300.0

U = Undetected at reporting limits



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SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	NITRITE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.027	0.015	EPA 300.0
02	Pitting Sample 2	0.025	0.015	EPA 300.0
03	Pitting Sample 3	0.023	0.015	EPA 300.0
04	Pitting Sample 4	0.025	0.015	EPA 300.0

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TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	FLUORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.30	0.10	EPA 300.0
02	Pitting Sample 2	0.36	0.10	EPA 300.0
03	Pitting Sample 3	0.28	0.10	EPA 300.0
04	Pitting Sample 4	0.39	0.10	EPA 300.0

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CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	CHLORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	260 ^	* 2.0	EPA 300.0
02	Pitting Sample 2	340 .	* 2.0	EPA 300.0
03	Pitting Sample 3	190 .	* 2.0	EPA 300.0
04	Pitting Sample 4	350 .	* 2.0	EPA 300.0

\* Reporting limit was raised due to dilution.

U = Undetected at reporting limits



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ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	SULFATE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	49	* 10	EPA 300.0
02	Pitting Sample 2	44	* 10	EPA 300.0
03	Pitting Sample 3	49	* 10	EPA 300.0
04	Pitting Sample 4	51	* 10	EPA 300.0

\* Reporting limit was raised due to dilution.

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ANALYSIS DATE: 02/03/00  
ANALYST: js

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	pH	REPORTING LIMIT	METHOD NUMBER
01	Pitting Sample 1	6.73	NA	EPA 150.1
02	Pitting Sample 2	6.12	NA	EPA 150.1
03	Pitting Sample 3	6.98	NA	EPA 150.1
04	Pitting Sample 4	6.23	NA	EPA 150.1

U = Undetected at reporting limits



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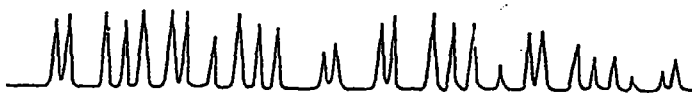
TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	SPECIFIC CONDUCTANCE μmhos/cm	REPORTING LIMIT μmhos/cm	METHOD NUMBER
01	Pitting Sample 1	1400	200	EPA 120.1
02	Pitting Sample 2	1700	200	EPA 120.1
03	Pitting Sample 3	1200	200	EPA 120.1
04	Pitting Sample 4	1800	200	EPA 120.1

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TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/07/00  
ANALYST: uh

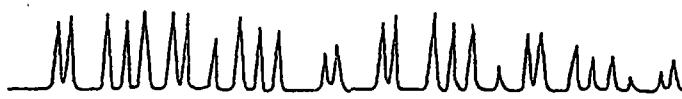
CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	AMMONIA NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.2	* 0.050	EPA 350.1
02	Pitting Sample 2	1.4	* 0.050	EPA 350.1
03	Pitting Sample 3	0.91	* 0.050	EPA 350.1
04	Pitting Sample 4	1.5	* 0.050	EPA 350.1

\* Reporting limit was raised due to dilution.

U = Undetected at reporting limits



# TRACE

Analytical Laboratories, Inc.

2241 Black Creek Road • Muskegon, MI 49444-2673 • Phone 231-773-5998 • Fax 231-773-6537 • E-Mail: TraceAnalytical@mad.scientist.com

Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/09/00  
ANALYST: uh

CLIENT ID: Proj. #1021

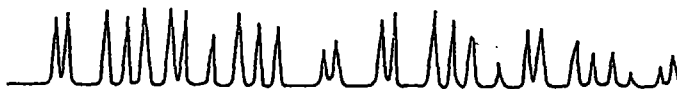
SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	BOD mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	** 900	* 400	EPA 405.1
02	Pitting Sample 2	** 1200	* 400	EPA 405.1
03	Pitting Sample 3	** 700	* 400	EPA 405.1
04	Pitting Sample 4	** 1300	* 400	EPA 405.1

\* Reporting limit was raised due to dilution.

\*\* The sample result and reporting limit must be considered estimated. The analysis was performed beyond the EPA established 24 hour hold time.

U = Undetected at reporting limits



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Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/08/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	BICARBONATE ALKALINITY as CaCO <sub>3</sub> mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	97	10	EPA 310.1
02	Pitting Sample 2	92	10	EPA 310.1
03	Pitting Sample 3	88	10	EPA 310.1
04	Pitting Sample 4	92	10	EPA 310.1

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

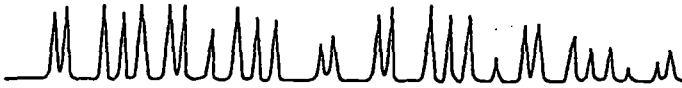
TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/08/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	CARBONATE ALKALINITY as CaCO <sub>3</sub> mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	U	10	EPA 310.1
02	Pitting Sample 2	U	10	EPA 310.1
03	Pitting Sample 3	U	10	EPA 310.1
04	Pitting Sample 4	U	10	EPA 310.1

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/07/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	TOTAL INORGANIC NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	3.1	0.040	EPA 300.0/350.1
02	Pitting Sample 2	3.2	0.040	EPA 300.0/350.1
03	Pitting Sample 3	2.8	0.040	EPA 300.0/350.1
04	Pitting Sample 4	3.4	0.040	EPA 300.0/350.1

U = Undetected at reporting limits



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Ms. Diane Lundin  
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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/09/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	HARDNESS mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	580	2.0	SM 2340B
02	Pitting Sample 2	670	2.0	SM 2340B
03	Pitting Sample 3	510	2.0	SM 2340B
04	Pitting Sample 4	710	2.0	SM 2340B

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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-01  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

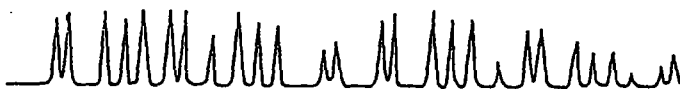
CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 1

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	200	1.0	02/09/00	EPA 6010
Iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	32	0.10	02/09/00	EPA 6010
Sodium	88	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-02  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 2

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	230	1.0	02/09/00	EPA 6010
Iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	46	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-03  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 3

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	170	1.0	02/09/00	EPA 6010
Iron	0.18	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	24	0.10	02/09/00	EPA 6010
Sodium	70	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-04  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 4

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	250	1.0	02/09/00	EPA 6010
Iron	0.16	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	40	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits

ANALYTICAL SERVICES AUTHORIZATION  
CHAIN-OF-CUSTODY RECORD

2/17

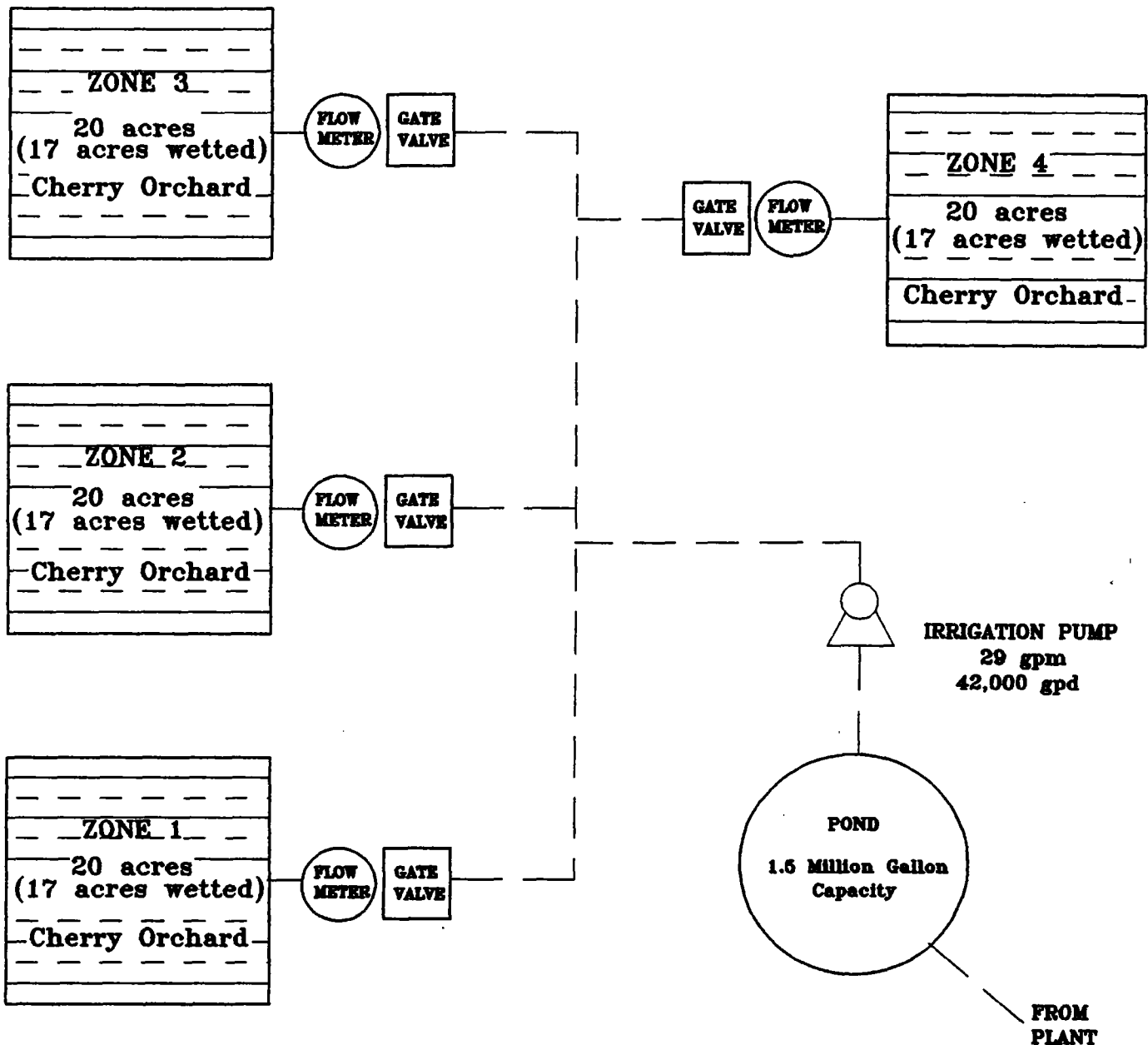
TRACE ID NO. 87258  
4858  
Page 1 of 2

PLEASE COMPLETE STEPS 1 THRU 3. TRACE PERSONNEL WILL COMPLETE SECTIONS SHADED BLUE.

STEP 1 Report Results To:		Client Name: <u>WILLIAMS ENVIRONMENTAL SOLUTIONS, INC.</u>				Logged By: <u>[Signature]</u>		Checked By:										
		Contact Person: <u>DIANE LUPPIN</u>				Received on lab: Yes No												
		Mailing Address: <u>1023 BUSINESS PARK DRIVE</u>																
		City, State, Zip Code: <u>TRAVORSO CITY, MICHIGAN 49685</u>																
		Phone: <u>(231) 941-2025</u>		Fax: <u>(231) 941-8752</u>														
		Email Address: <u>diane1@esi-tc.com</u>				Cooler Temp (°C):		ph Checked: Yes No										
		Client Job #: <u>1021</u>		P.O. #:		Trace Quote #:		Volatiles Preserved: HCl MaOH En Core No Metals Pres: Yes No										
		Sampled By: <u>CHRIS HUBBOLD WILLIAMSBURG RECEIVING</u>				ANALYSIS REQUESTED												
STEP 2 Sample Identification / Request for Analytical Services		<div>Regulatory Requirements MERA TMDL's <input type="checkbox"/> RCRA <input type="checkbox"/> NPDES <input type="checkbox"/> USACE <input type="checkbox"/> Wisconsin <input type="checkbox"/></div> <div>Turnaround Requirements Standard <input checked="" type="checkbox"/> * 5 Day (RUSH) <input type="checkbox"/> * 2-4 Day (RUSH) <input type="checkbox"/> * 24 Hour (RUSH) <input type="checkbox"/> * Requires prior approval</div> <div>Matrix Key DW = Drinking Water S = Soil SL = Sludge W = Water A = Air O = Oil X = Other</div>																
TRACE NO.	DATE TAKEN	TIME TAKEN	METALS FIELD FILTERED	VOLATILES PRESERVED	CLIENT SAMPLE ID	MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED								REMARKS	Possible Health Hazard	
01	2/3	8:00 <sup>A</sup>			PITTING SAMPLE 1	W	1	↓	↓	↓	↓	↓	↓	↓	↓	↓	SEE ATTACHED	
02	2/3	9:30 <sup>A</sup>			PITTING SAMPLE 2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	LIST FOR	
03	2/3	11:00 <sup>A</sup>			PITTING SAMPLE 3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	ANALYSIS REQUESTED,	
04	2/3	12:30 <sup>P</sup>			PITTING SAMPLE 4	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	DETECTION LIMITS	
																	AND METHODS	
																	REQUESTED,	
																	FOR EACH	
																	SAMPLE.	

STEP 3 Chain of Custody		Item #	RELEASED BY	RECEIVED BY	DATE	TIME	Item #	RELEASED BY	RECEIVED BY	DATE	TIME
	1)	01-04	[Signature]	[Signature]	2/3/00	2:15					
	2)										
	3)										
	4)										

**FIGURE 2**  
**Trickle Irrigation System**



THE TRICKLE IRRIGATION SYSTEM SCHEDULE  
IS DESIGNED TO RUN IN EACH ZONE FOR 24 HOURS  
AND THEN ROTATE TO THE NEXT ZONE.  
THIS ALLOWS FOR A 72 HOUR REST PERIOD.

H:\1021\80IRRIGATION

WILLIAMSBURG STORAGE & RECEIVING

TRICKLE IRRIGATION SYSTEM  
OPERATING BETWEEN MAY - SEPTEMBER



Environmental Solutions, Inc.

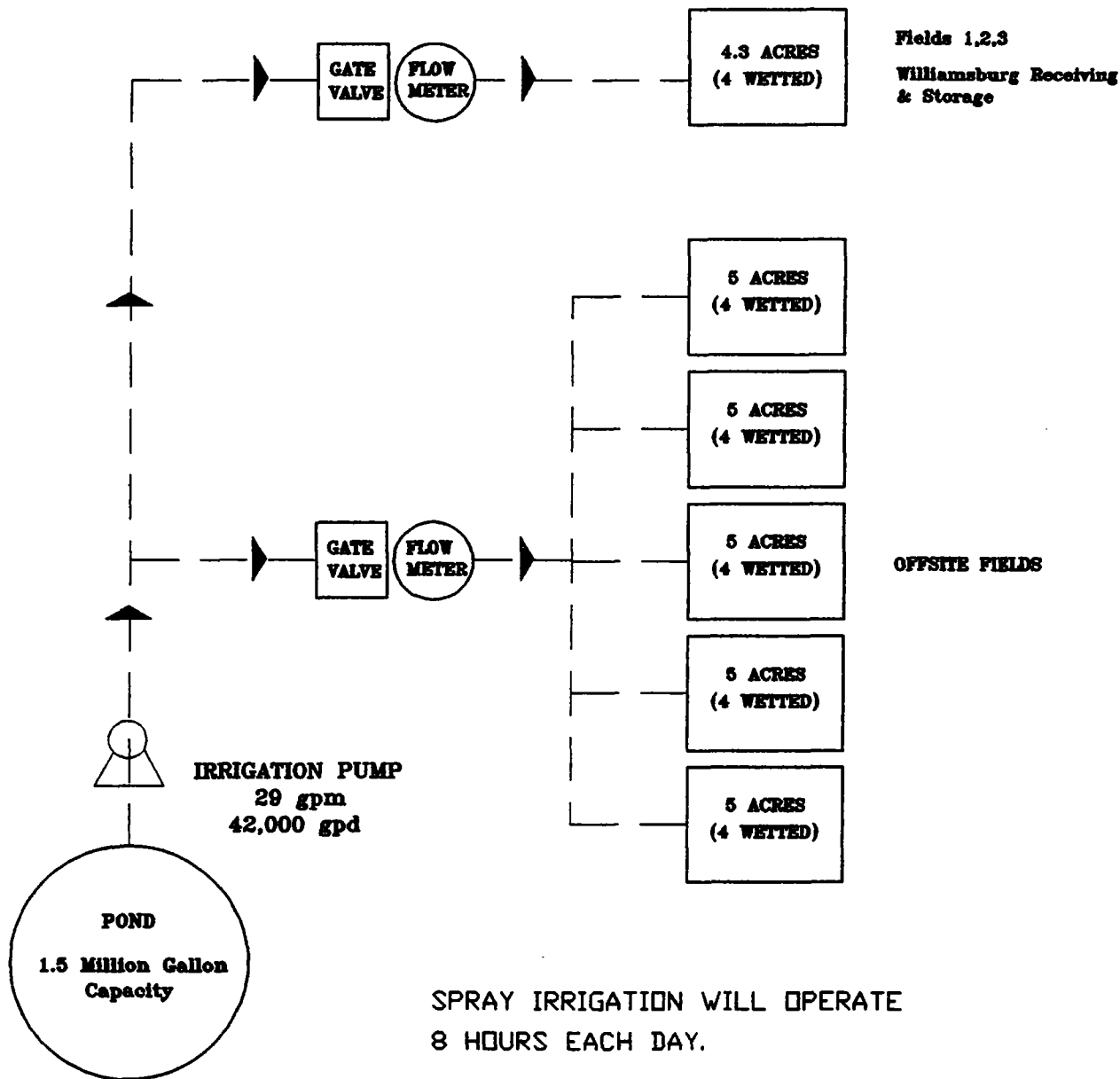
DWG DATE: 3/17/00

SCALE: BAR SIZE: A

DR. BY: DH SH: 1

NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE

**FIGURE 3**  
**Spray Irrigation System**



SPRAY IRRIGATION WILL OPERATE  
8 HOURS EACH DAY.

H:\1021\SPRAY

**WILLIAMSBURG STORAGE & RECEIVING**

**SPRAY IRRIGATION SYSTEM  
OPERATING BETWEEN OCTOBER - APRIL**



Environmental Solutions, Inc.

DWG DATE: 3/23/00

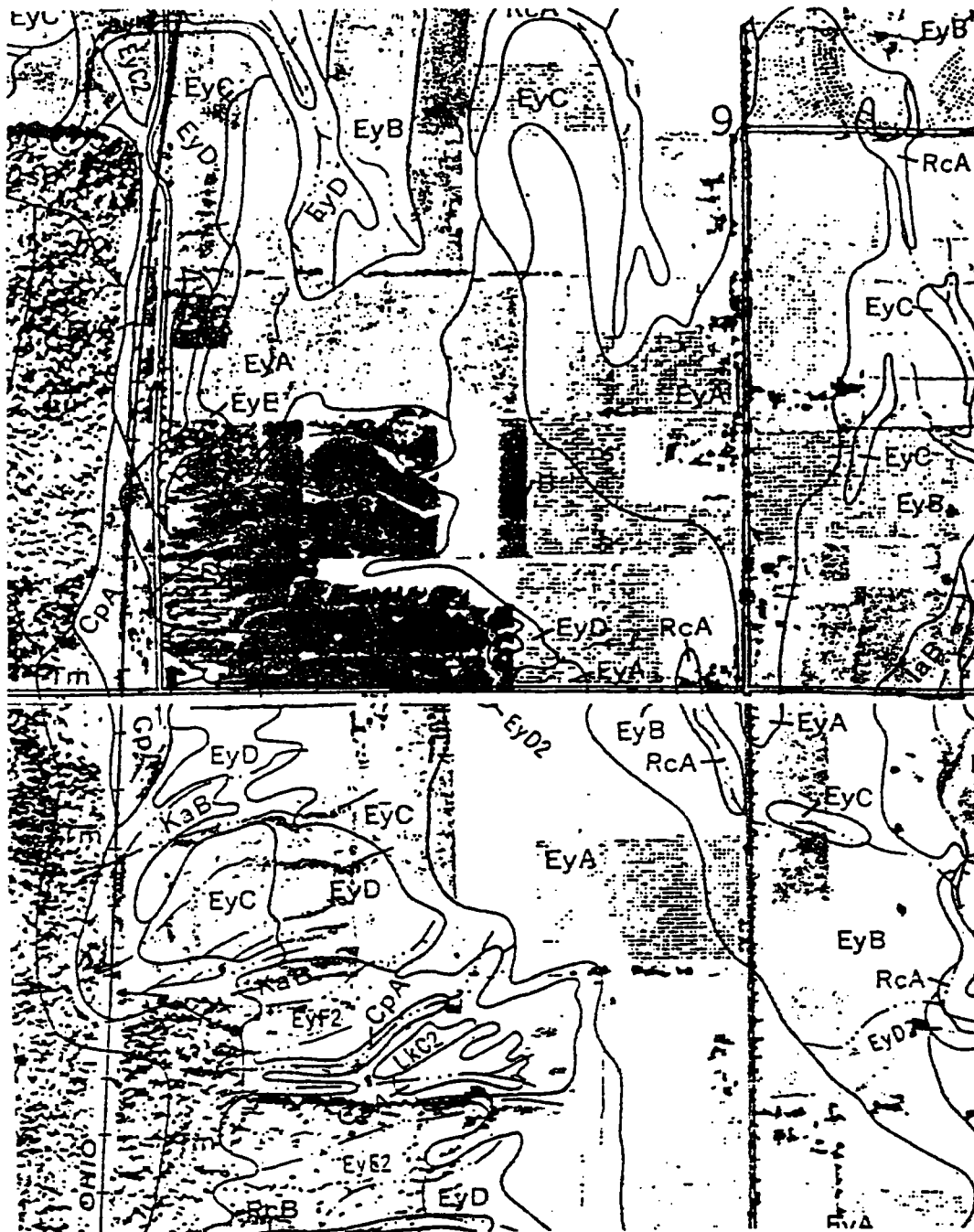
SCALE: BAR SIZE: A

DR. BY: DH SH: 1

NOTE: DRAWING IS FOR REFERENCE  
ONLY AND IS NEITHER COMPLETE  
NOR TO EXACTING SCALE

# **FIGURE 4**

## **Soils Map**



Symbol	Soil Description	Slopes
CoA	Crosswell Loamy Sands	0 to 2% Overwash
CpA	Crosswell Loamy Sands	0 to 2%
Ed	Edwards Muck	
EyA	Emmet Sandy Loam	0 to 2%
EyB	Emmet Sandy Loam	2 to 6%
EyC	Emmet Sandy Loam	6 to 12%
EyC2	Emmet Sandy Loam	6 to 12% Moderately Eroded
EyD	Emmet Sandy Loam	12 to 18%
EyD2	Emmet Sandy Loam	12 to 18% Moderately Eroded
EyE	Emmet Sandy Loam	18 to 25%
EyE2	Emmet Sandy Loam	18 to 25% Moderately Eroded
GzF2	Guelph-Nester Loams	25 to 35% Moderately Eroded
IaB	Ingalls-Alpena Gravelly Loamy Sands	2 to 6%
IiB	Iosco Loamy Sand	2 to 6%
IaA	Iosco-Ogemaw Loamy Sands	0 to 2%
IaB	Iosco-Ogemaw Loamy Sands	2 to 6%
KaB	Kalkaska Loamy Sand	2 to 6%
LkE	Leelanau-Kalkaska Loamy Sands	18 to 25%
LkF	Leelanau-Kalkaska Loamy Sands	25 to 45%
Ra	Rifle Peat	
Tu	Tonkey Mucky Sandy Loam	

SW 1/4 of Section 9, T28N, R9W  
 Whitewater Township  
 Grand Traverse County, Michigan

H:\1021\80IRRIGATION

## WILLIAMSBURG STORAGE & RECEIVING

### SOIL TYPES WITHIN PROPOSED

### IRRIGATION AREA



Environmental Solutions, Inc.

DWG DATE: 3/17/00

SCALE: BAR SIZE: A

DR. BY: DH SH: 1

NOTE: DRAWING IS FOR REFERENCE  
 ONLY AND IS NEITHER COMPLETE  
 NOR TO EXACTING SCALE

**Table 1**  
**Pitting Test Sample Results**

**TABLE 1 - PITTING TEST SAMPLE RESULTS**

<b>Analyte</b>	<b>Detection Limit</b>	<b>GW Rule Limit (µg/l)</b>	<b>AVG µg/l</b>	<b>STD DEV. µg/l</b>	<b>ERROR µg/l</b>	<b>UCL µg/l</b>
Sodium	1 mg/l	15,000	99.50	614.33	12.39	128.66
Chloride	1 mg/l	25,000	285.00	5633.33	37.53	373.30
Sulfate	2 mg/l	25,000	48.25	8.92	1.49	51.76
Phosphorous	.01 mg/l		2.78	0.22	0.23	3.32
Total Inorganic Nitrogen	.01 mg/l	5	3.13	0.06	0.13	3.42
Ammonia	.01 mg/l		1.25	0.07	0.13	1.56
Nitrate	.01 mg/l		1.83	0.00	0.03	1.88
Nitrite	.01 mg/l	0.5	0.03	0.00	0.00	0.03
Calcium	1 mg/l		212.50	1225.00	17.50	253.68
Iron	.02 mg/l	0.3	0.17	0.00	0.00	0.18
Magnesium	1 mg/l		22.00			22.00
Potassium	.1 mg/l		35.50	91.67	4.79	46.76
Bicarbonate	10 mg/l		92.25	13.58	1.84	96.59
Carbonate	10 mg/l					undetected
Fluoride			0.33	0.00	0.03	0.39
Hardness (Ca <sub>2</sub> CO <sub>3</sub> )	5 mg/l		617.50	8091.67	44.98	723.33
Conductivity	1.0 umhos/cm		1525.00	75833.33	137.69	1848.98
BOD	400 mg/l		1025.00	75833.33	137.69	1348.98
pH			6.52	0.17	0.20	7.00

Utilize "Test Methods for Evaluation of Solid Waste, Physical-Chemical Methods", SW-846, 3rd Edition, 9/86 as updated through 8/26/99 or "Guidelines Establishing Test Procedures for the Analysis of Pollutants," 40 CFR Part 136.

# **FIGURE 5**

**Calculations, Assumptions,  
Analytical Results**

### **Figure 5: Chloride Concentration Estimates**

$F_{WF}$  = Total flow rate at Williamsburg: 6 Pitters @ 5 gallons/minute + 1 Destemmer @ 5 gallons/minute + 1 Debrining Eliminator @ 3 gallons/minute = 38 gallons per minute

Comparable to anomomous facility where samples were collected, however, at Williamsburg, the Debrining Eliminator flow is recycled to the brine. Concentration at the eliminator is higher than at the pitters and destemmers. From previous hydrogeology study conducted at Williamsburg, the concentration of chloride in brine solution is 4,000 mg/l. If we assume approximate dilution by  $\frac{1}{2}$  at the eliminator, the concentration would be 2,000 mg/l. Therefore,  $C_{DB}$  = Concentration at Debrining Eliminator = 2,000 mg/l

To calculate the estimated concentration at Williamsburg, the concentration at the Debrining Eliminator can be subtracted from overall results. Using one minute as a basis, the following formula can be utilized:

$$C_{WF} = \{(C_{AF} * F_{AF} * K_{GL}) - (C_{DB} * F_{DB} * K_{GL})\} / \{(F_{WDIS} * K_{GL})\}$$

Where:

$C_{WF}$  = Chloride Concentration at Williamsburg Facility, mg/l

$C_{AF}$  = Chloride Concentration at Anonymous Facility, UCL, mg/l

$C_{DB}$  = Chloride Concentration at Debrining Eliminator, mg/l

$F_{AF}$  = Flow at Anonymous Facility, assume comparable to Williamsburg total flow, gallons

$F_{db}$  = Flow at Debrining Eliminator, gallons

$F_{WDIS}$  = Maximum flow to be discharged at Williamsburg Facility

$K_{GL}$  = Constant, Gallons to Liter conversion

Substituting into the equation:

$$C_{WF} = \{(374 \text{ mg/liter} * 38 \text{ gallons} * 3.8 \text{ liters/gallon}) - (2000 \text{ mg/liter} * 3 \text{ gallons} * 3.8 \text{ liters/gallon})\} / \{35 \text{ gallons} * 3.8 \text{ liters/gallon}\} = 234 \text{ mg/liter}$$

Utilizing this equation, the estimated concentration of chloride in the effluent at the Williamsburg facility is expected to be 234 mg/liter. Assumptions were: comparable flows at both facilities, dilution at debrining eliminator, which is recycled at Williamsburg, to 2000 mg/l (stronger brine concentration would make final value go down), and maximum flow discharge.



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# COPY

February 15, 2000

Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

RE: Trace ID Y858

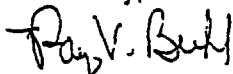
Dear Mr. Lundin:

Enclosed are the analytical results associated with your Project #1021.

This information was examined through Trace's validation process to ensure that all requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work. However, if there are exceptions, they will be noted at the bottom of the appropriate report page.

Thank you for working with Trace. If you have questions regarding this data, please contact Ann Preston, our client services manager, at (231) 773-5998, ext. 224.

Sincerely,



Ray V. Buhl  
Laboratory Manager

RVB/bmc  
Enclosures



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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/03/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	NITRATE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.9	0.015	EPA 300.0
02	Pitting Sample 2	1.8	0.015	EPA 300.0
03	Pitting Sample 3	1.8	0.015	EPA 300.0
04	Pitting Sample 4	1.8	0.015	EPA 300.0

U = Undetected at reporting limits



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TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/03/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	NITRITE NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.027	0.015	EPA 300.0
02	Pitting Sample 2	0.025	0.015	EPA 300.0
03	Pitting Sample 3	0.023	0.015	EPA 300.0
04	Pitting Sample 4	0.025	0.015	EPA 300.0

U = Undetected at reporting limits



# TRACE

Analytical Laboratories, Inc.

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Ms. Diane Lundin  
Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	FLUORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	0.30	0.10	EPA 300.0
02	Pitting Sample 2	0.36	0.10	EPA 300.0
03	Pitting Sample 3	0.28	0.10	EPA 300.0
04	Pitting Sample 4	0.39	0.10	EPA 300.0

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Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	CHLORIDE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	260 ^	* 2.0	EPA 300.0
02	Pitting Sample 2	340 .	* 2.0	EPA 300.0
03	Pitting Sample 3	190 .	* 2.0	EPA 300.0
04	Pitting Sample 4	350 .	* 2.0	EPA 300.0

\* Reporting limit was raised due to dilution.

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	SULFATE mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	49	* 10	EPA 300.0
02	Pitting Sample 2	44	* 10	EPA 300.0
03	Pitting Sample 3	49	* 10	EPA 300.0
04	Pitting Sample 4	51	* 10	EPA 300.0

\* Reporting limit was raised due to dilution.

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TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/03/00  
ANALYST: js

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	pH	REPORTING LIMIT	METHOD NUMBER
01	Pitting Sample 1	6.73	NA	EPA 150.1
02	Pitting Sample 2	6.12	NA	EPA 150.1
03	Pitting Sample 3	6.98	NA	EPA 150.1
04	Pitting Sample 4	6.23	NA	EPA 150.1

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/04/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	SPECIFIC CONDUCTANCE μmhos/cm	REPORTING LIMIT μmhos/cm	METHOD NUMBER
01	Pitting Sample 1	1400	200	EPA 120.1
02	Pitting Sample 2	1700	200	EPA 120.1
03	Pitting Sample 3	1200	200	EPA 120.1
04	Pitting Sample 4	1800	200	EPA 120.1

U = Undetected at reporting limits



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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/07/00  
ANALYST: uh

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	AMMONIA NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	1.2	* 0.050	EPA 350.1
02	Pitting Sample 2	1.4	* 0.050	EPA 350.1
03	Pitting Sample 3	0.91	* 0.050	EPA 350.1
04	Pitting Sample 4	1.5	* 0.050	EPA 350.1

\* Reporting limit was raised due to dilution.

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Ms. Diane Lundin  
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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/09/00  
ANALYST: uh

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	BOD mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	** 900	* 400	EPA 405.1
02	Pitting Sample 2	** 1200	* 400	EPA 405.1
03	Pitting Sample 3	** 700	* 400	EPA 405.1
04	Pitting Sample 4	** 1300	* 400	EPA 405.1

\* Reporting limit was raised due to dilution.

\*\* The sample result and reporting limit must be considered estimated. The analysis was performed beyond the EPA established 24 hour hold time.

U = Undetected at reporting limits



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TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/08/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	BICARBONATE ALKALINITY as CaCO <sub>3</sub> mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	97	10	EPA 310.1
02	Pitting Sample 2	92	10	EPA 310.1
03	Pitting Sample 3	88	10	EPA 310.1
04	Pitting Sample 4	92	10	EPA 310.1

U = Undetected at reporting limits



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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/08/00  
ANALYST: cy

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	CARBONATE ALKALINITY as CaCO <sub>3</sub> mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	U	10	EPA 310.1
02	Pitting Sample 2	U	10	EPA 310.1
03	Pitting Sample 3	U	10	EPA 310.1
04	Pitting Sample 4	U	10	EPA 310.1

U = Undetected at reporting limits



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Environmental Solutions, Inc.  
P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/07/00  
ANALYST: uh/dj

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	TOTAL INORGANIC NITROGEN mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	3.1	0.040	EPA 300.0/350.1
02	Pitting Sample 2	3.2	0.040	EPA 300.0/350.1
03	Pitting Sample 3	2.8	0.040	EPA 300.0/350.1
04	Pitting Sample 4	3.4	0.040	EPA 300.0/350.1

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

TRACE ID: Y858  
REPORT DATE: 02/15/00  
ANALYSIS DATE: 02/09/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

TRACE SAMPLE NO.	SAMPLE ID	HARDNESS mg/L	REPORTING LIMIT mg/L	METHOD NUMBER
01	Pitting Sample 1	580	2.0	SM 2340B
02	Pitting Sample 2	670	2.0	SM 2340B
03	Pitting Sample 3	510	2.0	SM 2340B
04	Pitting Sample 4	710	2.0	SM 2340B

U = Undetected at reporting limits



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Traverse City, MI 49685-2127

TRACE ID: Y858-01  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 1

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	200	1.0	02/09/00	EPA 6010
Iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	32	0.10	02/09/00	EPA 6010
Sodium	88	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



# TRACE

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Traverse City, MI 49685-2127

TRACE ID: Y858-02  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 2

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	230	1.0	02/09/00	EPA 6010
Iron	0.17	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	46	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



# TRACE

Analytical Laboratories, Inc.

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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-03  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 3

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	170	1.0	02/09/00	EPA 6010
Iron	0.18	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	24	0.10	02/09/00	EPA 6010
Sodium	70	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits



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Ms. Diane Lundin  
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P.O. Box 2127  
Traverse City, MI 49685-2127

TRACE ID: Y858-04  
REPORT DATE: 02/15/00  
DIGESTION DATE: 02/04/00  
ANALYST: sd

CLIENT ID: Proj. #1021

SAMPLE DATE: 02/03/00  
SAMPLE RECEIVED: 02/03/00  
SAMPLE TYPE: Water  
SAMPLER: ch/Williamsburg

SAMPLE ID: Pitting Sample 4

TOTAL METALS	RESULT mg/L	REPORTING LIMIT mg/L	ANALYZED	METHOD NUMBER
Calcium	250	1.0	02/09/00	EPA 6010
Iron	0.16	0.020	02/09/00	EPA 6010
Magnesium	22	1.0	02/09/00	EPA 6010
Potassium	40	0.10	02/09/00	EPA 6010
Sodium	120	1.0	02/09/00	EPA 6010

U = Undetected at reporting limits

**Analytical Laboratories, Inc.**

TRACE ID NO. 1858

$$2/17$$
Page 1 of 2

**PLEASE COMPLETE STEPS 1 THRU 3. TRACE PERSONNEL WILL COMPLETE SECTIONS SHADED BLUE.**

STEP 1

Report Results To:

Client Name

WILLIAMS ENVIRONMENTAL SOLUTIONS, INC.

Contact Person:

DIANE LUNDIN

Mailing Address:

1023 BUSINESS PARK DRIVE

City, State, Zip Code:

TRAVERSO CITY, MICHIGAN 49685

Phone:

(231) 941-2025

Fax:

(231) 941-8752

Email Address:

diane1@esi-tc.com

Client Job #:

1021

P.O. #:

Traco Quote #:

Sampled By:

CHRIS HUBBOLD WILLIAMSBURG RECEIVING

Regulatory Requirements

MERA TMDL's

☐

RCRA

☐

NPDES

☐

USACE

☐

Wisconsin

☐

Turnaround Requirements

Standard

☒

\* 5 Day (RUSH)

☐

\* 2-4 Day (RUSH)

☐

\* 24 Hour (RUSH)

☐

\* Requires prior approval

☐

Matrix Key

DW = Drinking Water

S = Soil

W = Water

O = Oil

SL = Sludge

A = Air

X = Other

TRACE NO.

DATE TAKEN

TIME TAKEN

METALS FIELD FILTERED

VOLATILES PRESERVED

CLIENT SAMPLE ID

MATRIX

NUMBER OF CONTAINERS

1

2/3

8:00<sup>A</sup>

PITTING SAMPLE 1

W

1

2

2/3

9:30<sup>A</sup>

PITTING SAMPLE 2

↓

↓

3

2/3

11:00<sup>A</sup>

PITTING SAMPLE 3

↓

↓

4

2/3

12:30<sup>P</sup>

PITTING SAMPLE 4

↓

↓

ANALYSIS REQUESTED

SODIUM NITRATE

AMMONIUM NITRATE

SULFATE

PHOSPHORUS

TOTAL NITROGEN

AMMONIA

NITRITE

CADMIUM

IRON

511

REMARKS

SEE ATTACHED LIST FOR ANALYSIS REQUESTED, DETECTION LIMITS, AND METHODS REQUESTED, FOR EACH SAMPLE.

Possible Health Hazard

STEP 2

Step 2

Sample Identical / Request for Analytical Services

STEP 3

Chain of Custody

Item #

1

RELEASED BY

[Signature]

RECEIVED BY

[Signature]

DATE

2/3/04

TIME

2:15

Item #

2)

RELEASED BY

RECEIVED BY

DATE

TIME

Item #

3)

RELEASED BY

RECEIVED BY

DATE

TIME

Item #

4)

RELEASED BY

RECEIVED BY

DATE

TIME

By executing this agreement, the client acknowledges acceptance of the terms of the agreement.

## **Irrigation Management Plan**

### **Williamsburg Receiving and Storage**

#### **General Information:**

The maximum discharge rate of the facility will be 42,000 gpd, or 15.3 million gallons per year. The average discharge rate, calculated as a ten hour day versus a twenty hour day for maximum, will be 21,000 gpd. The initial discharged water will be staged in a 1.5 million gallon holding pond. From the holding pond the water will be pumped and applied to the land utilizing a slow rate land treatment system.

The irrigation of the discharge water will be applied in two ways:

1. During the spring and summer months, the discharge will be applied to the 80 acre cherry orchard through a trickle irrigation system.
2. During time in which watering the cherry orchard would be detrimental to the water uptake of the trees, the discharge will be applied to a 29.7 acre field through a spray irrigation system

Refer to Figure 1 for location of Trickle Irrigation and Spray Irrigation areas.

#### **Trickle Irrigation System**

The 80 acre cherry orchard is divided into four zones or cells (refer to Figure 2). Each 20-acre zone consists of 17 acres (740,520 sq ft.) of usable wetted area. Each 17 acre zone will receive 42,000 gpd (5,615 cubic feet) of discharge via a main supply line laid the length of the orchards. Secondary supply lines will run the length of each row of cherry trees. Along these secondary lines, trickle irrigation nodes will be placed every six feet. An isolation distance of 100 feet will be maintained between the irrigation nodes (wetted area) and the property lines. The maximum application rate to each 17 acre zone equates to 0.09 inch/day/ 17 acres.

The proposed irrigation schedule for the 80 acre cherry orchard will be conducted between May through September of each year. Irrigation of the orchard will be conducted seven days a week during this time frame. However, the orchard application will be rotated between zones each day. Therefore, each zone will be utilized once out of every four days. Application to each of the 20-acre zones will be conducted 24 hours out of each day.

The maximum application rate for each 20 acre zone (17 acres wetted) will be 0.09 inches /day. Each 20 acre zone will be irrigated once out of every four days. The application rate will not exceed 0.004 inches/hr for each 24 hour period. This application rate equates to a 3.46 in/22 week period for the entire 68 acre wetted trickle irrigation system.

Application will not exceed 0.63 inches/week and 13.86 inches/22 week period for any 17 acre wetted area of the trickle irrigation system. The application rates to each zone will be monitored daily through the use of flow meter attached to each of the four 20 acre zones. Individual gate valves will be utilized to control flow to each of the 20-acre zones.

#### **Spray Irrigation System**

During the off season (between October and April) the discharge water from the pond will be applied to a 4.7 acre field (Fields 1,2 & 3) located on the Williamsburg Receiving and Storage property and to a 25 acre field located on an adjacent property. These fields will be planted with a grass forage crop consisting of clover, red fescue or alfalfa, which will be cut approximately three

times during the season and removed. The vegetative yield will be approximately 3.5 tons/acre. The application rates described will provide approximately one third of the necessary phosphorous and one half of the necessary potassium to maintain optimum yield, according to the nutrient levels determined through wastewater characterization.

The application to these fields will be conducted between the hours of 8:00 a.m. and 4:00 p.m. to allow maximum evaporation to occur. It is also estimated that during the off-season, the spray irrigation system will operate 5 days out of every week. The system will run longer during dry periods and shorter during wet weather, in order to balance hydraulic loading.

The spray irrigation system is divided into six (5 acre) zones, each consisting of 4 acres of usable wetted area (Refer to Figure 3). Each 4-acre wetted zone will be rotated daily so that each zone is utilized once every six days. The wetted area of each zone comprises 174,240 sq. ft. An application rate of 42,000 gpd equates to 5,615 cubic feet per day to each of the 4 acre wetted zones, or 0.4 inches/day/4 acres.

Since the spray irrigation will be utilized for only 8 hr./day, the application rate will be 0.05 in/hr during operation.

The spray irrigation system will operate for 150 days between October 1 and April 30 of each year. This equates to 57.6 in/ 150 day period for the total 24 acre wetted spray irrigation system. On a one day in six rotation schedule, each 4 acre wetted zone will receive 9.6 in/ 150 day period.

#### **Soil Information**

The soils in each of the irrigation areas consist predominantly of Emmet Sandy Loam with 0-2% to 2-6% slopes. According to the "Grand Traverse County Soil Survey, Physical and Chemical Properties of the Soils" the bulk density of the Emmet Sandy Loam ranges from 1.3-1.65 g/cm<sup>3</sup>. The permeability of these soils ranges from 2-6 in/hr. according to this Soil Survey. Refer to Figure 4 for a soils map with the facility property boundaries and the wetted area of the irrigation fields clearly outlined.

Depth to groundwater in the trickle irrigation cherry orchard area ranges from 50' to 87' feet below grade according to local well logs. According to the hydrogeological investigation data obtained from the spray irrigation fields on the Williamsburg Receiving and Storage facility, groundwater lies 10'-50' below grade.

#### **Wastewater Characterization**

Table 1 illustrates the quality of the expected effluent. Samples were collected from the pitting operation at a comparable facility; however, one major difference at the facility where samples were collected is that there is not an initial debrining elimination stage. This means that concentrations of some constituents, particularly chlorides, are higher than what is expected at Williamsburg Storage and Receiving. The samples were collected within a four-hour time period and were tested and measured against discharge standards provided in Rule 323.2222. The average value, standard deviation, standard error, and upper control limits are shown for each parameter tested, as described in "Guidesheet III, Characterization of Wastewater", provided by the Michigan Department of Environmental Quality. Results were calculated at a 95 percent confidence level.

The results indicate that the parameters tested are expected to be within the required discharge standards. The upper control limit for chloride concentration exceeds the groundwater application standard, however, since the process at Williamsburg will be recycling the effluent from the eliminator stage, where chloride concentrations are highest, a result lower than the standard is

expected. Refer to Figure 5 for assumptions and calculations of expected discharge concentrations, and all analytical results. These calculations show that the expected concentration at discharge would be 234 mg/l, below the 250 mg/l standard.

The level of Biochemical Oxygen Demand for the samples tested indicated a level of 1350 mg/l, which, at the low application rate being proposed, we expect full land treatment without detrimental impact to groundwater quality.

### **Trickle Irrigation Management Procedures:**

1. The Trickle Irrigation System consists of an 80-acre cherry orchard divided into 4 20-acre zones.
2. Open the gate valve at the appropriate (20 acre) zone and document from the flow meter, total gallons pumped to this zone in the Irrigation Management Log Book.
3. Insure that the remaining three irrigation zone gate valves are closed.
4. Implement visual inspection of the zone to be irrigated for detrimental effects of the irrigation process. Note these observations in the Log Book.
5. Make necessary adjustments to the irrigation nodes within the zone prior to start up.
6. Start pump and adjust discharge rate to 29 gpm. Record date, time and flow rate in the Log Book.
7. Visually inspect the irrigation zone for leaks, breaks or other failures.
8. Periodically check the field and flow rate during each day.
9. Alternate trickle irrigation field zones every 24 hrs.

### **Spray Irrigation Management Procedures:**

1. The Spray Irrigation System is comprised of 4.7-acres on the Williamsburg Receiving and Storage property and a 25-acre field located on the south side of Angel Road.
2. The spray irrigation fields have been divided into six (~5-acre) zones.
3. Each (5-acre) zone will be irrigated for 6-8 hours per day at a rate of 29 gpm.
4. Visually inspect the designated spray irrigation field for soil moisture and for detrimental effects of the irrigation process. Note these observations in the Log Book.
5. Manually adjust the gate valves to proper 5-acre plot to be irrigated.
6. Make necessary adjustments to the spray gun nozzles and tracking systems within the zone prior to start up, to account for any over-wetted areas.
7. Document total gallons discharged to this particular zone in the Log Book prior to start up.
8. Start pump and adjust discharge rate to 29 gpm. Record date, time and flow rate in the Log Book.
9. Visually inspect the spray irrigation zone to insure proper operation.
10. Periodically check the field and flow rate during each day.
11. Operate the spray irrigation system between the hours of 8:00 a.m. and 4:00 pm daily.
12. Alternate the spray irrigation field zones each day.
13. Fields should be mowed and vegetation removed as necessary.

# **FIGURE 1**

**Site Location Map of  
Trickle Irrigation and  
Spray Irrigation Areas**

**Exemption 9**

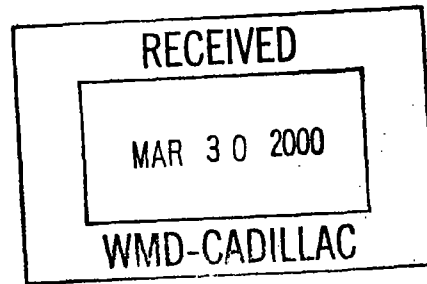
1023 Business Park Drive  
P.O. Box 2127  
Traverse City, MI 49685-2127  
616 941-2025

Williamsburg Receiving  
A.J. Co.  
**COPY**



► Environmental Solutions, Inc.

March 28, 2000



Mr. Lonnie Lee  
Waste Management Division  
Section Chief  
Groundwater Quality  
Michigan Department of Environmental Quality  
PO Box 30241  
Lansing, Michigan 48909

RE: Application for a Groundwater Discharge Permit, Rule 2218, for  
Williamsburg Receiving and Storage, 10190 Munro Road, Whitewater Township,  
Williamsburg, Michigan

Dear Mr. Lee:

Enclosed in Attachment 1 is an application for Williamsburg Receiving and Storage for a groundwater discharge permit under Rule 323.2218 of the Michigan Natural Resources and Environmental Protection Act of 1994, PA 451 as amended.

Through this letter, we will provide a summary of the process under consideration for a discharge permit. We believe that the information provided demonstrates qualification for an exemption from permitting under rule 323.2210 (y), however, in order to expedite the process, we have provided the information required for Rule 2218.

#### Process Description

Williamsburg Receiving and Storage currently processes cherries during the cherry harvesting season, stores these cherries in brine solution, and ships the cherries to customers for further processing and use. They do not discharge any brine; all brine is utilized for shipping cherries from the facility. Approximately twenty percent of the brine utilized for shipment must be made in addition to what has been utilized for storage of the cherries.

The facility has recently renewed wastewater permit number MI 0044741, which allows the discharge of cooling water during harvesting season. This water is in contact with the fresh cherries

only, and a maximum of 1.3 million gallons per day is discharged from the facility to Tobeco swamp between June and August.

The facility is currently installing equipment to allow the capability of removing the pits and stems from the cherries. A schematic of the process is included in the application under Attachment 1. The cherries are pumped from brine storage through a food pump and food grade lines to the dump tank. The cherries are then pumped through an initial misting stage at the debrining eliminator. Residual brine is removed at this stage from the cherries. The initial stage will utilize approximately three gallons of water per minute. Water discharged from this process will be recycled to brine storage. The cherries are then sent through a destemmer and six pitters. The process at Williamsburg Receiving and Storage does not require water for transport; the process prefers as little water as possible as transport is conducted via conveyor. At each of these stages, a maximum of five gallons per minute is utilized, bringing total maximum usage pitting and discharge stages to 35 gallons per minute. This flow will be recycled through the pitters to the extent practicable. A maximum operating schedule is anticipated to be 20 hours per day, and the amount of discharge from the facility would be a maximum of 42,000 gallons per day. The facility is proposed to operate year round, seven days a week.

#### **Proposed Discharge**

The facility is in the process of constructing a lined pond with a holding capacity of 1.5 million gallons. The effluent will be utilized for irrigating cherry fields on the applicant's property as well as cherry farms on adjacent properties (refer to Site Map 2 in application). The total area for groundwater application is approximately eighty acres. Application of the effluent will be through aerial spray and trickle irrigation. This application will be rotated as necessary to ensure crop and land stability. Visual inspections of the irrigations will be made prior to, during and after irrigation to evaluate pooling, ponding, and runoff. Though maximum discharge on a daily basis will be 42,000 gallons, average daily discharge is expected to be much lower than this amount.

#### **Analysis of Alternatives**

Rule 323.2217 requires certification that the applicant has identified and considered steps to avoid or minimize the use and discharge of pollutants authorized to be discharged. Recycling from the eliminators to the brine solution, utilization of a "dry" transport process, recycling internally at the pitters and destemmers, and utilization of the discharge to support and enhance existing cherry farms all contribute to minimization of waste. By utilizing the discharge on existing fields and cherry farms, waste disposal is also minimized at alternative waste treatment facilities.

#### **Hydrogeological Study**

Based on the analytical results and the limited discharge rates, with adherence to an Irrigation Management Plan, we are proposing that hydrogeological requirements be waived for this application. It is worth noting that a previous hydrogeological study has been conducted on the proposed discharge area, and based on this study, it was concluded that 94,000 gallons per day of

brine solution would not have a detrimental impact on the land. Furthermore, the Right to Farm Act of Michigan allows a farmer to irrigate lands without additional permitting requirements.

**Irrigation Management Plan**

The Irrigation Management Plan (IMP) is submitted under Attachment 2. Irrigation water will be applied through a trickle system to approximately eighty acres of cherry tree orchards and through a spray system to approximately thirty acres of field. Effluent quality and application rates are discussed in the IMP.

We trust that the information provided is sufficient to meet the requirements of the exemption. If necessary, assumptions for any of the testing parameters can be confirmed prior to discharge. Four samples, the minimum suggested in the guideline for Waste Water Characterization, were available for determining effluent quality.

An additional copy of this letter and all Attachments is included with this mailing. Please let us know how we can assist you in processing this application, so that we may proceed with irrigation on the described land. If you have any questions regarding the referenced information, please contact me at (231) 941-2025, extension 104.

Sincerely,

ENVIRONMENTAL SOLUTIONS, INC.



Diane C. Lundin  
Industrial Management Specialist

pc: Chris Hubbell  
Ed Roy  
Janice Heuer - Michigan Department of Environmental Quality  
enc.

# **ATTACHMENT 2**

## **Irrigation Management Plan**

WMD Cadillac

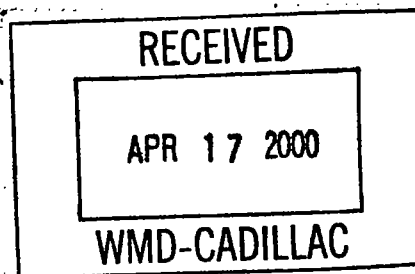
~~Williamstul Receipt & Stamp~~  
G.T. 06

Groundwater Application Transmittal

TO:	Date Received <u>3/30/00</u>
1. Section Secretary (Database Entry)	ID# GW <u>283450</u>
2. EQA <u>TOM WESTON</u>	Geologist <u>Doug Thompson</u>
3. <u>James Janiczek</u>	

ACTION	PRIORITY	AUTHORIZATIONS	JURISDICTION
<input type="checkbox"/> RETURNED	<u>4</u>	<input type="checkbox"/> 2210(y) Site Specific Exempt	<input checked="" type="checkbox"/> WMD
<input type="checkbox"/> PENDING		<input type="checkbox"/> 2211( ) Notification	<input type="checkbox"/> DWRPD
<input type="checkbox"/> RENEWAL		<input type="checkbox"/> 2213( ) Notification and Certification	<input type="checkbox"/> MDCIS
<input type="checkbox"/> RENEWAL-L		<input type="checkbox"/> 2215 General Permit	
		<input type="checkbox"/> 2216( ) Specific Discharges	DISCHARGE METHOD
		<input checked="" type="checkbox"/> 2218 Permit	<u>A.1.f.1</u>

Remarks:



From: Scott Ross J.B.B

Date 4/5/00

Copy to District Office: Cadillac

# DATA ENTRY FORM

## FACILITY INFORMATION

## DISCHARGE LOCATION

ENTRYDATE: 03/30/2000  
 FACIDNO: GW283450  
 FACNAME1: WILLIAMSBURG RECEIVING AND STO  
 FACNAME2:  
 FORMNAME:  
 FACADDR: 10190 MUNRO ROAD  
 FACCTY: WILLIAMSBURG FACSTATE: MI FACZIP: 49690

DISADDR: 10190 MUNRO ROAD  
 DISCTY: WILLIAMSBURG  
 DISTWP: WHITEWATER  
 DISCOUNTY: 28  
 COUNTY: GRAND TRAVERSE

## CONTACT PERSON INFORMATION

## MISCELLANEOUS INFORMATION

CONTACT: CHRIS HUBBELL  
 CMRADDR:  
 CMRCITY:  
 CMRSTATE: CMRZIP:  
 CONT PHONE: 231-264-5260

DISTRICT: CAD DISTNAME: CADILLAC  
 JURTYPE: WMD  
 SECTION1: SW1/4  
 SECTION2: SW1/4  
 SECTIONNO: 09 TOWN: 28N RANGE: 09W

## PERMIT INFORMATION

## DISCHARGE INFORMATION

PUBNOTICE:  
 PERMITNO:  
 ACTION: PENDING  
 PRIORITY: 4  
 SCORE:  
 ISSUED:  
 EXPIRES:  
 NOTIFYDATE:  
 PREVAUTH:  
 SICCODE: 2033  
 MIC:  
 IPP:  
 RULE AUTH: 2218

DISCHTYPE: PROC  
 DISCHMETH: A1f1  
 TREATMENT 1: A1f1  
 TREATMENT 2:  
 TREATMENT 3:  
 DISCHDAY: 42000  
 DISCHANN: 15300000

## ADMINISTRATIVE TRACKING INFORMATION

EQAASSIGN: WESTONT  
 GEOASSIGN: THOMPSOD  
 TOXASSIGN:  
 SSCASSIGN:  
 REVSTATUS:  
 RECDATE1: 3/30/2000  
 RECDATE2: 3/30/00  
 ACKDATE:  
 RETDATE:  
 DEFDATE:  
 DEFDATE:  
 DEFRESF:  
 DEFEVAL:

HPLANDATE:  
 HPLANAPPR:  
 HDEFDATE:  
 HDEFDUE:  
 HDEFRESF:  
 HYDSUMDATE:  
 SWQD DATE:  
 SITEVISIT:  
 PUBLICMTG:  
 PUBLICHEAR:  
 LTR60DATE:  
 LTR60DUE:  
 LTR60RESP: